The Journal of

MEDICAL EDUCATION

Association of American Medical Colleges
63rd Annual Meeting, November 10-12, The Broadmoor, Colorado Springs, Colo.

VOL. 27 SEPTEMBER 1952—IN TWO PARTS No. 5

Part 1

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The Journal of MEDICAL EDUCATION is published bimonthly: January, March, May, July, September, November, by the Association of American Medical Colleges, 185 N. Wabash Ave., Chicago 1, Ill.; Phone, STate 2-8870. Entered as second class matter January 17, 1930, at the Post Office, Chicago, under the Act of March 3, 1879. Neither the editors nor the Association assumes responsibility for statements made by individual writers.

Subscription rates: $5 per year; $1 per single copy; foreign, $6 per year.

Copy Deadline: Copy for typesetting must be in by the 1st and plates by the 10th of the month preceding publication.

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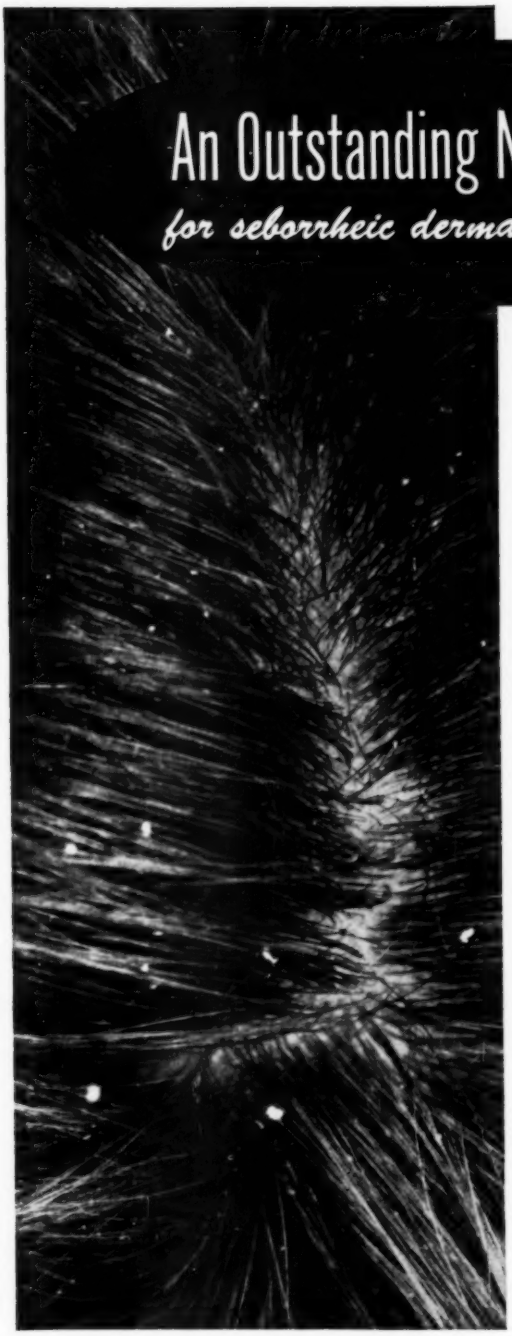

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1. Slinger, W. N., and Hubbard, D. M. (1951), Arch. Dermat. & Syph., 64:41, July.
2. Slepyan, A. H. (1952), *Ibid.*, 65:228, February.
3. Ruch, D. M. (1951), Communication to Abbott Laboratories.
4. Kehoe, R. A. (1946; 1947), Communication to Abbott Laboratories.
5. Sterner, J. H., and Lidfeldt, V. (1941), J. Pharmacol. & Exper. Therap., 73:205, October.

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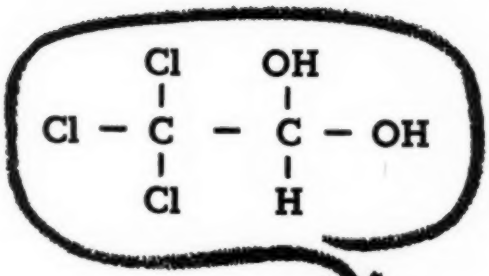

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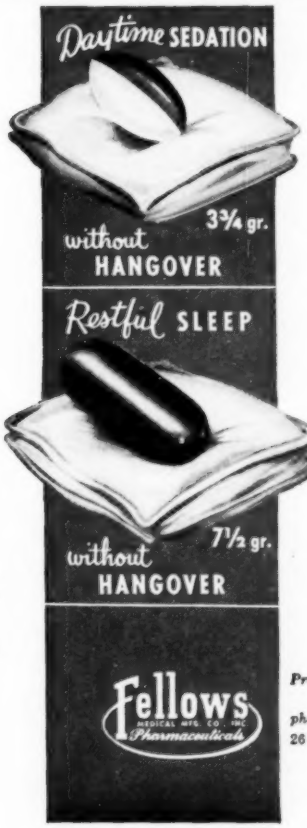

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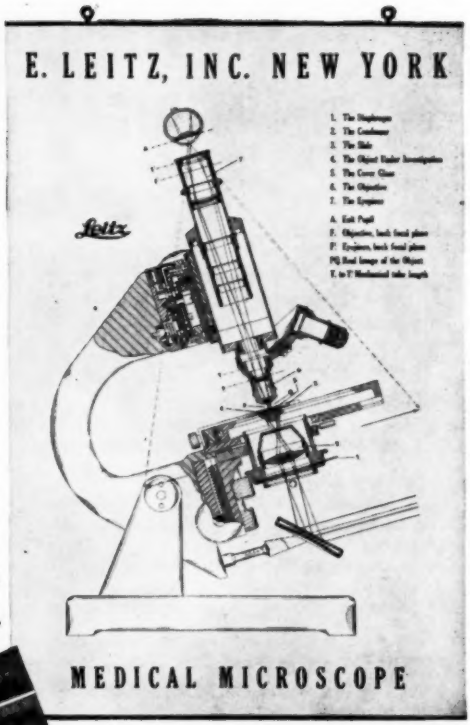

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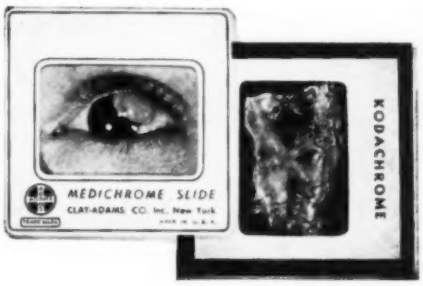

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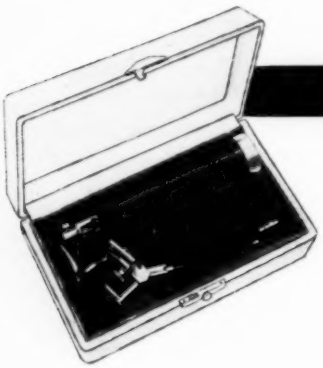

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Bibliography

1. Barach, A.L., et al.: Advances in the Treatment of Non-Tuberculous Pulmonary Disease, Bull. New York Acad. Med. *28*:353 (June) 1952.
2. Flippin, H.F.: 'Neo-Penil', a Penicillin Ester with Unusual Pharmacologic and Clinical Properties, report distributed at the Chicago Session of the American Medical Association (June) 1952.
3. Segal, M.S., et al.: Advances in the Management of the Patient with Intractable Bronchial Asthma, paper delivered before the National Tuberculosis Association and the American Trudeau Society, May 28, 1952, at Boston.
4. Segal, M.S., et al.: The Therapy of Chronic Pulmonary Emphysema, GP, in press.

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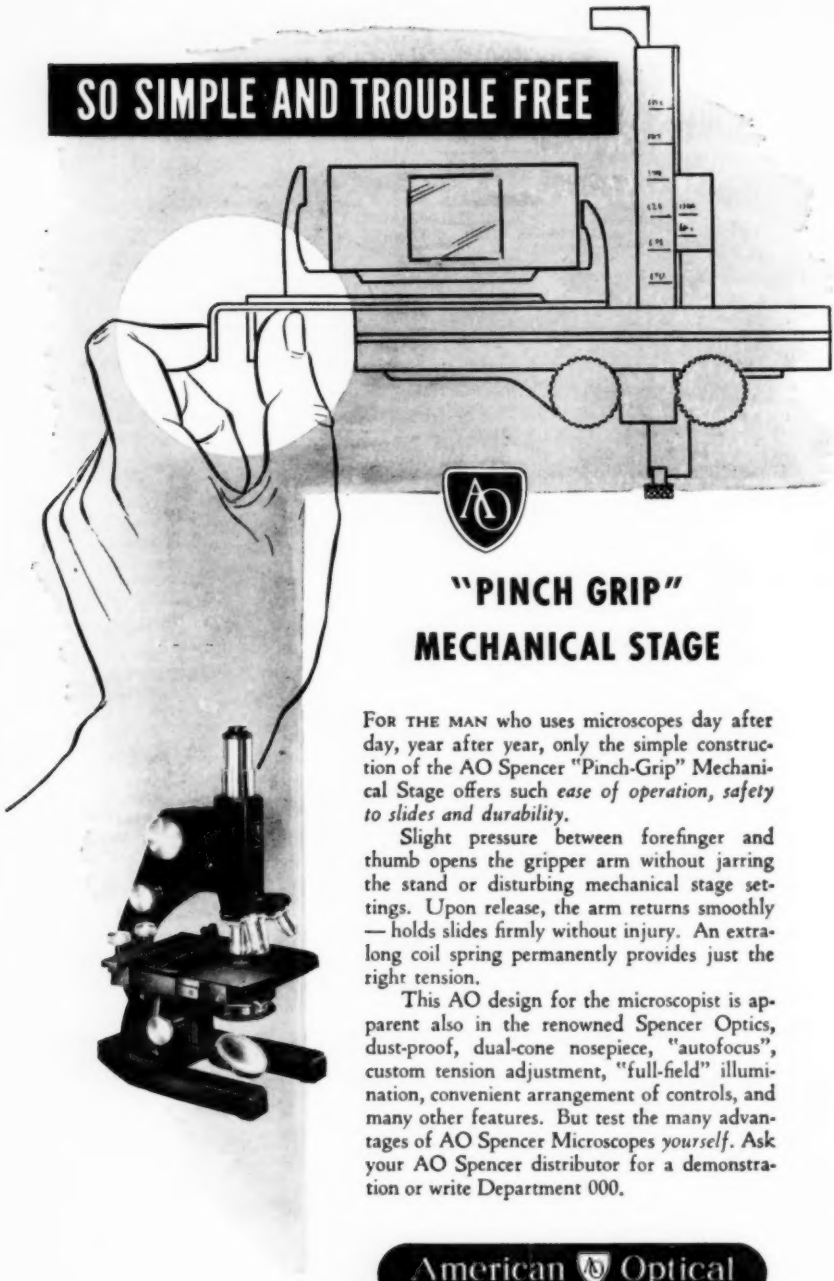

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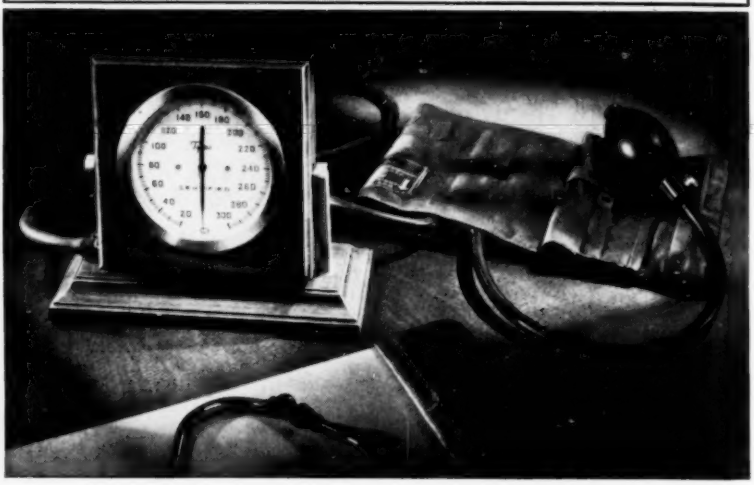

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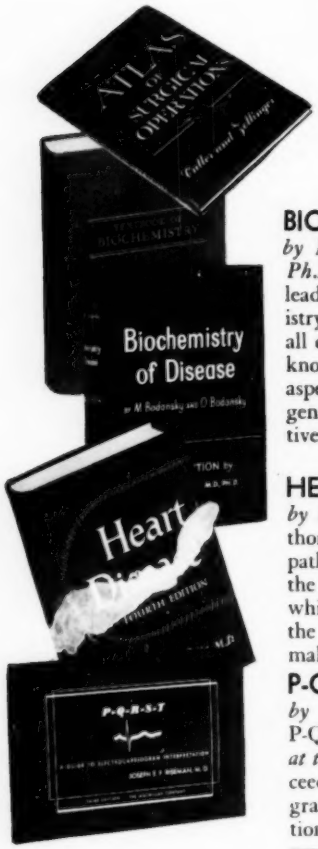

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Staffing Patterns at Four-Year Medical Schools

Current data gathered by the Office of Defense Mobilization and AAMC show wide variation in faculty-student ratios and in the teaching and research time per student in the nation's medical schools.

HAROLD S. DIEHL, MARGARET D. WEST, ROBERT W. BARCLAY

WIDE DIFFERENCES EXIST in the scope of the educational programs and research activities conducted by the approved four-year medical schools. These differences are products of the diverse circumstances and budgets under which the schools operate as well as their differing objectives or goals. Some schools, for example, concentrate on training general practitioners while others give time and attention also to the conduct of research and to the advanced training of specialists, medical educators and research workers.

According to reports received from the individual members of the medical school faculties, the medical schools of the country fall into two fairly well-defined groups on the basis of faculty-student ratios, the faculty time devoted to research and the proportion of graduates serving as full-time teachers at medical schools. (The data for the various medical schools are subject to the inaccuracies inherent in reporting by individual faculty members of the schools.) In this paper these groups will be identified as Group I and Group II.

Group I includes 23 schools, almost one-third of the total. These schools offer their students a relatively high amount of faculty time and they also are the schools which carry on heavy research programs and train a large proportion of the full-time physicians teaching in medical schools. The remaining two-thirds of the schools, 49 in number, make up Group II.

Data used in this study were collected in February 1951 in a survey conducted by the Health Resources Advisory Committee and the Association of American Medical Colleges.[1] Data collected in 1942 by the Procurement and Assignment Service and the Public Health Service, as well as other studies, agree with the findings of the present study and indicate that the differences among schools are not a recent development.

Dr. Diehl is a member of the Health Resources Advisory Committee and dean of medical sciences at the University of Minnesota. Mrs. West and Mr. Barclay are members of the Health Resources Staff of the Office of Defense Mobilization. This article is the second of two reports on medical school staffing. The first, "Medical School Faculties in the National Emergency," was published in the Journal of MEDICAL EDUCATION, July 1952.

Faculty-Student Ratios

The average four-year medical school was staffed with 26 full-time equivalent faculty members per 100 students in February 1951.[2] The most heavily staffed school reported 62 full-time equivalent faculty members per 100 students, while the low school had only 10 per 100. Overall, the faculty-student ratio for Group I schools was 38 full-time equivalent faculty members per 100 students compared to 19 for Group II schools. Thus, the student in a typical Group I medical school was offered twice as much faculty time as his counterpart at a Group II school.

Faculty time in these ratios includes teaching and clinical service, research and administration. If teaching and clinical service time alone is considered, the differences are narrowed but still are significant. Group I schools reported an average of 20 full-time equivalent faculty members engaged in teaching and clinical service per 100 students as compared to 12 for Group II schools. Between the high and the low schools there was a fivefold difference in teaching and clinical service time per student.

Medical School Standards

The Joint Committee on Medical Education in Time of National Emergency has proposed a national emergency staffing standard of one faculty member for every four preclinical students and one faculty member for every three clinical students—29 faculty members per 100 students. Only 21 of the 72 four-year medical schools met this standard at the time of the survey, while the overall ratio of 26 per 100 fell short of meeting the standard by 10 per cent.

Analyzing the data in another way, it appears that the larger schools use fewer faculty per student than smaller schools (see Table 1 and Chart 1).

Faculty time per student decreased an average of 9 per cent at Group I schools and an average of 11 per cent at Group II schools with each additional 100 students as shown in Table 1. Comparable reductions were noted in the 1942 data.

Medical School Staffing

Medical school staffing patterns in 1951 were much the same as in 1942.[3] There has been, however, a moderate expansion in enrollment and faculty over the nine-year period. The average approved four-year medical school in 1942 reported 325 students and a faculty of 210 individuals. Its 1951 counterpart had 350 students and a faculty of 215 full-time and part-time members, increases of 7 per cent and 2

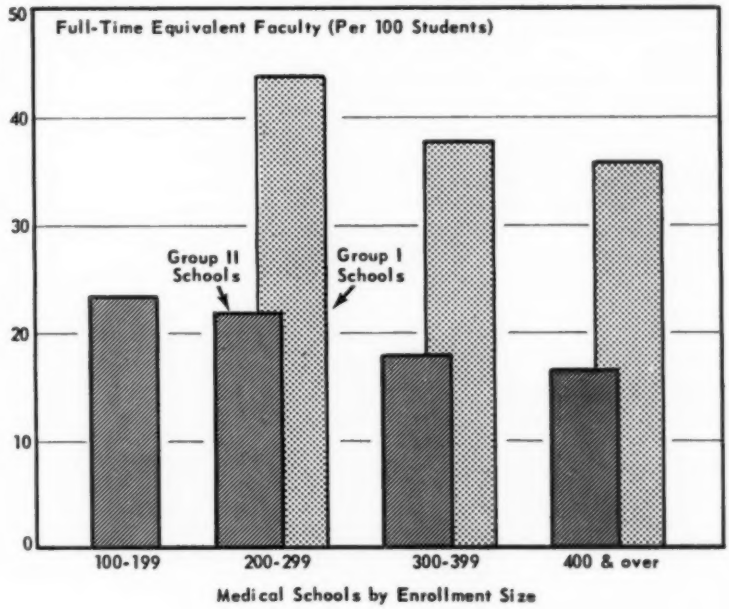
TABLE 1

Faculty-Student Ratios for Group I and II Schools by Enrollment Size

Enrollment	Equivalent Full-Time Faculty per 100 Students	
	Group I Schools	Group II Schools
Total	38.4	19.1
100-199	—	23.8
200-299	44.1	22.1
300-399	38.3	18.5
400 and over	36.4	16.9

Chart 1

Larger schools use fewer faculty per 100 students than smaller schools

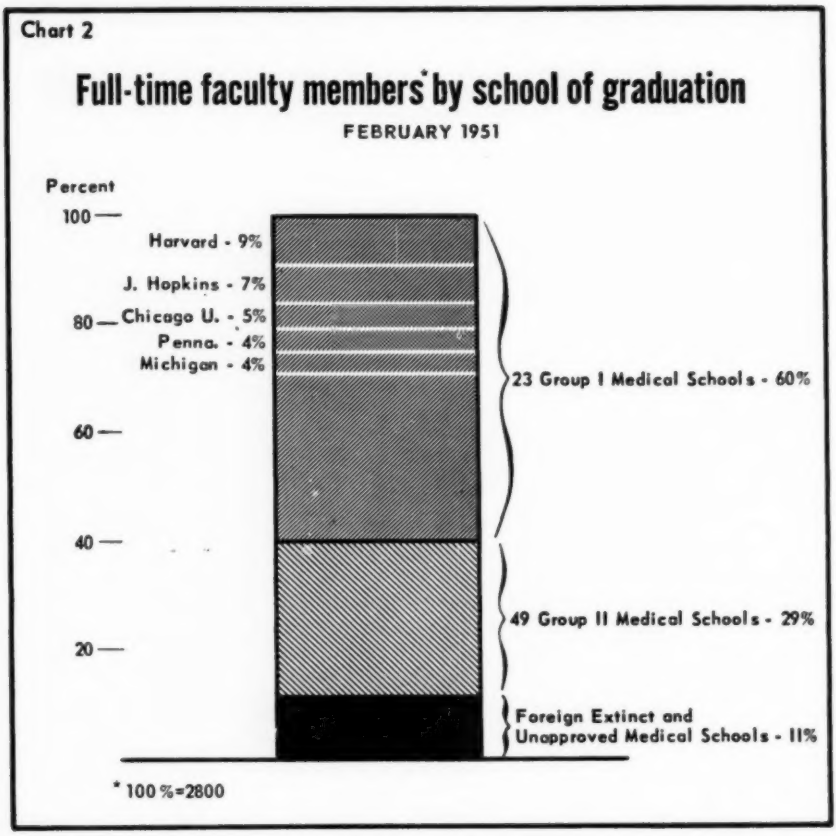


per cent respectively. Over the same period the number of approved four-year schools in operation rose from 66 to 72. Five new schools were opened[4] and a school unapproved in the earlier year was approved.

The numbers and hours of part-time faculty apparently were about the same in 1951 as in 1942. There were about two faculty members for every three students in both 1942 and 1951, and in both years the services of 2.3 individuals were used for each full-time equivalent faculty member.

School-by-school differences in faculty-student ratios in 1951 were practically the same as those prevailing in 1942. In 1942, as in 1951, there was a difference of six times in faculty time per student between the high and low school. In both years the low school reported 10 equivalent full-time faculty members per 100 students, while the school at the opposite end of the scale reported over 60-65 in 1942 and 62 in 1951. In total, faculty time per student dropped 7 per cent between 1942 and 1951.

Chart 2



Teacher-Training Schools

Understaffing in medical schools is a chronic problem. Latest reports of the American Medical Association show 235 full-time positions vacant.[5] Presumably there also are part-time positions budgeted but unfilled, although no information is available concerning the size of this deficit. Even without reports of vacancies, the extent of the differences in faculty time per student for schools with approximately the same enrollments strongly suggests that the staffing of some schools is below optimum levels.

Since medical school enrollments are expanding in response to the added demands of the national emergency for physicians, a logical question to those interested in medical education is: "What schools are supplying most of the physician teachers?"

Physicians make up about 90 per cent of the medical school faculty members and provide about 80 per cent of the total faculty time. To find the answer, all physicians on faculties in February 1951 were asked their school of graduation on the survey questionnaire. Of the 2,800

physicians holding full-time appointments as faculty members at medical schools, 60 per cent were graduated from 23 schools in Group I, 29 per cent from the 49 schools in Group II and the remaining 11 per cent came from foreign, unapproved or extinct schools (see Chart 2).

Two yardsticks of measurement were used to determine the relative standings of the schools as teacher-training schools. These were: (1) the total number of alumni holding full-time faculty appointments in medical schools, and (2) the per cent of 1925-49 alumni holding full-time faculty appointments in medical schools.

Under the first criterion Harvard, the alma mater of 263 full-time physician faculty members, was in first place. Graduates of Harvard accounted for 9 per cent of the total full-time physician faculty members in medical schools. Next were Johns Hopkins with 7 per cent, the University of Chicago with 5 per cent, and Pennsylvania and Michigan with 4 per cent each (see Chart 2).

At the average Group I medical school, about one-third of the full-time physician faculty positions were filled by alumni, while at Group II schools the comparable proportion was one-half. There were two Group II schools which reported that more than 95 per cent of their full-time physician faculty positions were filled by their own graduates.

Of the 1,800 physicians teaching full-time at a medical school other than their alma mater, 11 per cent graduated from Harvard, 9 per cent from Johns Hopkins and 5 per cent from the University of Chicago. Between 3 and 4 per cent graduated from Pennsylvania, Yale, Michigan, Columbia and Washington in St. Louis, while the remaining schools all had less than 3 per cent of their alumni in full-time teaching jobs at schools other than their alma mater.

Since larger schools and older schools have an advantage over smaller and newer schools when total numbers alone are the standard of measurement, the per cent of all 1925-49 graduates teaching full-time was computed for each school. Under this rating Johns Hopkins was first with 10 per cent of its graduates in full-time teaching jobs. Harvard was second with 7 per cent, Yale was third with 6 per cent and Rochester was fourth with 5 per cent (see Chart 3). All Group I schools had 1 per cent or more of their graduates serving as full-time teachers in medical schools.

Research

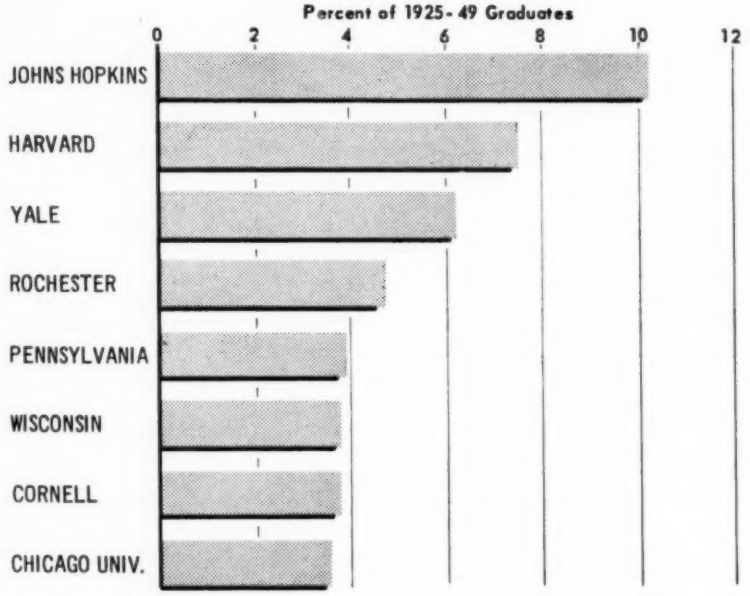
Since an active research program has long been accepted as a necessary corollary of medical education both at undergraduate and graduate levels, it is not surprising that universities with medical schools account for such a significant share of the nation's research potential measured in terms of manpower. In 1949 they had on their faculties more than two-thirds of the scientists listed in the 1944 edition of *American Men of Science*, according to findings of the National Institutes of Health of the Public Health Service. Group I schools alone, the study showed, had the services of more than 40 per cent of the total. Although later data have not been analyzed, it is not likely this picture has changed materially.

In February 1951 the four-year medical schools had about 6,600 faculty members engaged in research on either part-time or full-time schedules. In terms of full-time equivalents, they represented a staff of 2,128, about one-third of the total faculty time.

Chart 3

Top 8 schools in the proportion of 1925-49 physician graduates holding full-time faculty appointments at U.S. medical schools

FEBRUARY 1951



Schools high in teaching time per student also tended, as a rule, to be high in research time per student. The typical Group I school had a full-time equivalent research staff of 14 per 100 students, while Group II schools had 5 per 100 students.

The biggest research program from a man-hour standpoint was located at Columbia where a full-time equivalent staff of more than 100 were engaged in research. Pennsylvania, Illinois, Harvard and New York University were next in line with more than 70 of their full-time equivalent faculties engaged in research.

In terms of faculty time devoted to research per student, the University of Chicago was high with 25 full-time equivalent faculty members engaged in research per 100 students. Then came Columbia, Johns Hopkins and Yale, all with more than 20 per 100 students.

Summary

Staffing patterns and curricula vary widely among the 72 approved

four-year medical schools, according to data collected in 1951 which is substantiated by information previously collected in 1942. The differences among schools probably stem from a combination of causes including the basic objectives or missions of the schools and the diverse circumstances and budgets under which they operate.

A school-by-school review of several measures shows that 72 four-year schools divide into two groups. Group I schools represent about one-third of both the schools and the student enrollment, yet their staffs account for more than one-half of the total faculty time and about 60 per cent of the research time. They offered twice as much faculty time per student and about three times as much research time per student as Group II schools. Graduates of Group I schools make up 60 per cent of the full-time physicians in full-time teaching jobs at medical schools.

Larger schools use fewer faculty per student than smaller schools. Among Group I schools, faculty time per student decreased by 9 per cent for each additional 100 students and at Group II schools the comparable drop was 11 per cent.

Conclusion

Since medical schools differ so much, one from another, overall faculty-student ratios as well as other standards on an across-the-board basis have little meaning for the individual schools. Should a sharply stepped-up mobilization force more extensive withdrawals from medical schools, the staffing of each school would have to be considered separately in determining minimum levels of operation.

REFERENCES

1. Questionnaires drawn up and mailed by the Association of American Medical Colleges were completed by the individual faculty members and transmitted by the Association to the Health Resources Staff of the Office of Defense Mobilization where they were processed. Since the survey was conducted in February 1951, the newly-opened University of California in Los Angeles was not included.

2. Faculty members include all those in the rank of instructor or higher, exclusive of residents, devoting 25 hours or more annually to teaching, research or administration. Hours of part-time faculty were converted into full-time equivalents using 1,920 hours per year as equal to full-time. For an explanation of the conversion to full-time equivalents see "Medical School Faculties in the National Emergency," published in the Journal of MEDICAL EDUCATION, July 1952. As the latter article pointed out, the validity of all full-time equivalents is dependent on the accuracy of the individual faculty members in estimating the amount of time devoted to medical school activities.

3. Data for 1942 were collected by the Procurement and Assignment Service and the Public Health Service.

4. Alabama, Bowman Gray, Southwestern, Utah and Washington are the five new medical schools.

5. *Journal of the American Medical Association*, Educational Number, Volume 147, pp. 131-169, September 8, 1951.

The Costs of Conducting Programs of Research

Development of a method to determine the cost of research will encourage payment of indirect costs to schools receiving grants-in-aid.

HARRY M. WEAVER

WITHIN THE LAST few years there has been a general realization that acceptance of grants-in-aid for programs of research requires grantee institutions to expend some of their own funds if the objectives of the grants are to be achieved. The acceptance of large amounts of extra-institutional funds for this purpose has forced grantee institutions to expand materially their physical facilities and their administrative, technical and secretarial staffs, and to spend more money for such items as maintenance and utilities.

In all too many instances in the past these added costs have been met by using funds intended primarily for educational purposes. In this connection it must be realized that the cost of research and the cost of education cannot be considered as separate and unrelated entities in that one is essential to the other. And yet, it is important to determine the fair share of the cost of conducting research so that this activity is not allowed to parasitize the other functions of the institution.

At the present time some agencies which make grants-in-aid to support research make no contribution whatsoever toward defraying these hidden or indirect costs; other agencies increase the amounts of grants by 5.0 or more per cent; still others add to grants-in-aid approximately 50.0 per cent of the amount of the salaries paid by the grant and certain other items. This multiplicity of policies for helping defray such costs is confusing to recipients of grants. Furthermore, these policies suggest that fund-granting agencies are making, at best, only token contributions toward defraying costs which have not been clearly defined.

A method for determining the total cost of conducting programs of research, mutually acceptable to both grantees and grantors, has been the subject of some little consideration and study since it is prerequisite to the question: what portion of the total cost of conducting programs of research should be borne by the sponsoring agency?

In a prior publication[1], a formula was proposed for use in determining the total cost *(direct costs* or amount of grant-in-aid, plus *indirect costs* or those other expenses to the grantee institution not included in the grant-in-aid) of conducting programs of research. The purpose of this paper is: (1) to record an experience with

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this method of determining such costs, and (2) to suggest a basis for defraying the indirect costs of conducting programs of research for which grants-in-aid are made.

Cost Determination Method

The formula[1] has been applied to 91 grants-in-aid to 33 institutions for support of programs of research of heterogeneous nature. An analysis of the indirect costs incurred in conducting these programs of research shows that the amounts of the indirect costs, expressed as percentages of direct costs, varied from 13.0 to 155.5 per cent (weighted mean 38.7) of the direct costs (grants-in-aid).

Figure I illustrates the relation of the amount of the direct costs to the amount of the indirect costs of the 91 grants analyzed. This shows: (1) that the relation of indirect to direct costs is not consistent from grant to grant, and (2) that the indirect costs do not increase at the same rate as the direct costs.

Figure II depicts this relationship in another way. Here the indirect cost is expressed as a percentage of the direct cost and the illustration shows that the percentage is subject to much fluctuation, especially in relation to grants amounting to less than $30,000.

The question might be asked whether such fluctuations are (1) due to the difference in the cost of conducting small as compared with large programs of research, (2) whether it costs more to carry out a particular program of research in one institution than it does in another, or (3) whether it is more expensive to investigate one subject or aspect of a subject than another.

Table I illustrates the relation between direct and indirect costs for the 91 grants-in-aid, arranged in three groups according to size. This table and Figure II suggest that the

Figure I

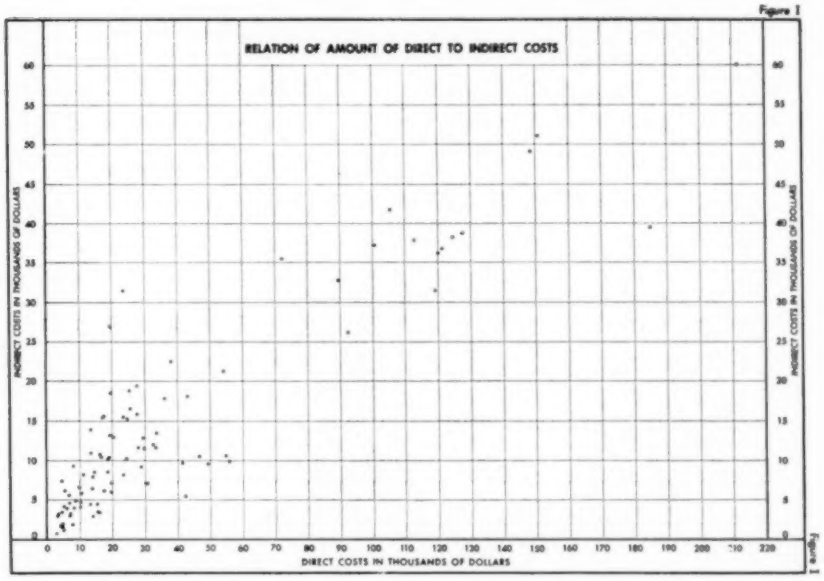

RELATION OF AMOUNT OF DIRECT TO INDIRECT COSTS
INDIRECT COSTS IN THOUSANDS OF DOLLARS
0 5 10 15 20 25 30 35 40 45 50 55 60
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220
DIRECT COSTS IN THOUSANDS OF DOLLARS

TABLE I

Relation of Amount of Direct to Indirect Costs Expressed as Percentage of Direct Costs

Grants-in-aid amounting to	No. of grants-in-aid	Total of direct costs	Total of indirect costs	Total of indirect costs expressed as % of total of direct costs	Range of indirect costs expressed as % of direct costs of individual grants within the group		No. of grants-in-aid in which indirect costs expressed as % of direct costs falls within—		No. of grants-in-aid in which indirect costs expressed as % of direct costs falls within—	
					Max.	Min.	10% + or − of 38.7%	20% + or − of 38.7%	10% + or − of group %	20% + or − of group %
$10,000 or less	22	$ 137,112	$ 85,419	62.3%	155.5%	21.9%	4 (18.1%)	6 (27.3%)	4 (18.1%)	5 (22.7%)
Between $10,001 and $30,000	40	777,990	453,081	58.2%	137.2%	21.5%	5 (12.5%)	10 (25%)	9 (22.5%)	15 (37.5%)
More than $30,000	29	2,472,356	771,856	31.2%	58.8%	13.0%	7 (24.1%)	11 (37.9%)	8 (27.6%)	14 (48.3%)
In Toto:	91	$3,387,458	$1,310,356	38.7%	155.5%	13.0%	16 (17.6%)	27 (29.7%)	16 (17.6%)	27 (29.7%)

amount of the indirect costs varies inversely with the size of the grant, although that relationship is by no means constant. For example, although the total indirect costs, expressed as percentage of total direct costs for 40 different grants-in-aid between $10,001 and $30,000 were

Figure II

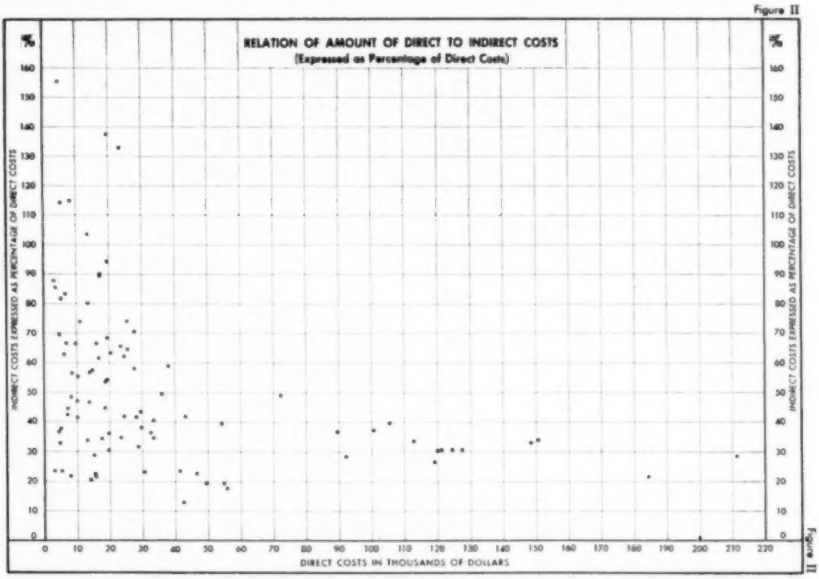

RELATION OF AMOUNT OF DIRECT TO INDIRECT COSTS
(Expressed as Percentage of Direct Costs)
%
INDIRECT COSTS EXPRESSED AS PERCENTAGE OF DIRECT COSTS
DIRECT COSTS IN THOUSANDS OF DOLLARS
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220

Figure II

58.2 per cent, only nine of these 40 grants had indirect costs that fell within plus or minus 10 per cent of this figure, and only 15 within plus or minus 20 per cent. The least fluctuation in the relation of direct to indirect costs is encountered in those grants of more than $30,000.

In Figure III is shown the relationship between the direct and indirect costs of 12 different grants-in-aid made to the same institution but in support of programs of research of quite dissimilar nature. This graph illustrates that there is considerable fluctuation in the relation of direct to indirect costs even among those grants-in-aid made to the same institution.

Figure IV illustrates the relation of the amount of the direct to the indirect costs of 12 relatively large grants-in-aid made to four different institutions (two private and two state), but in support of programs of research of quite similar nature. In this instance there appears to be a close correlation among the several grants in the relation of direct to indirect costs. Thus it would seem that fluctuations in the relation of direct to indirect costs of conducting programs of research are more likely to result from differences in the nature of the research being conducted than from differences in the size of the grant or the financial practices of the institutions under whose auspices the research is being carried out.

The suggestion has been made that some less complicated method than the formula proposed[1] be employed to determine the amount of the indirect costs incurred in conducting a research program. It has been suggested that this might be accomplished by assuming indirect costs to be some arbitrary percentage of the amount of the grant or of the amount of the salaries paid by the grant.

Figure III

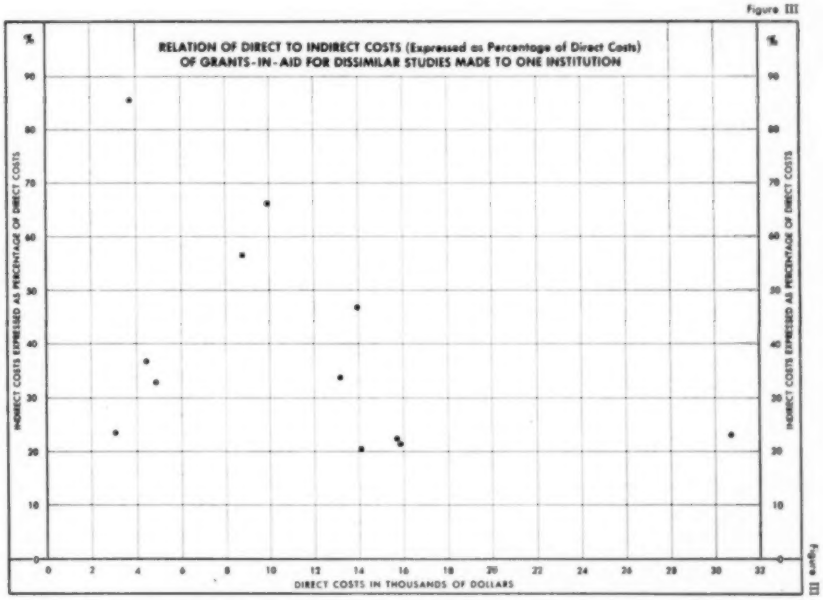


Figure IV

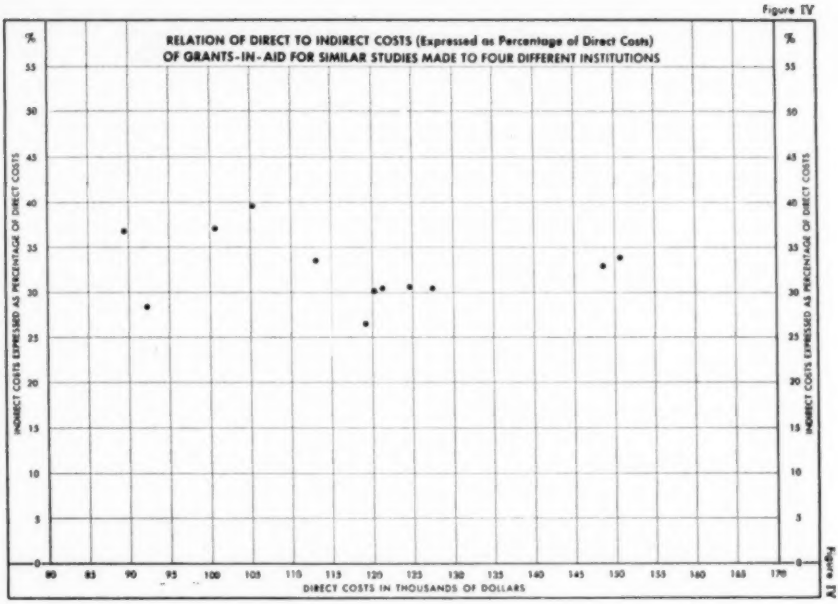


Figure V illustrates, for 91 grants, the amount of the indirect costs determined by three different methods. These are:

(1) An amount equal to one half the amount of the salaries paid by the grant.

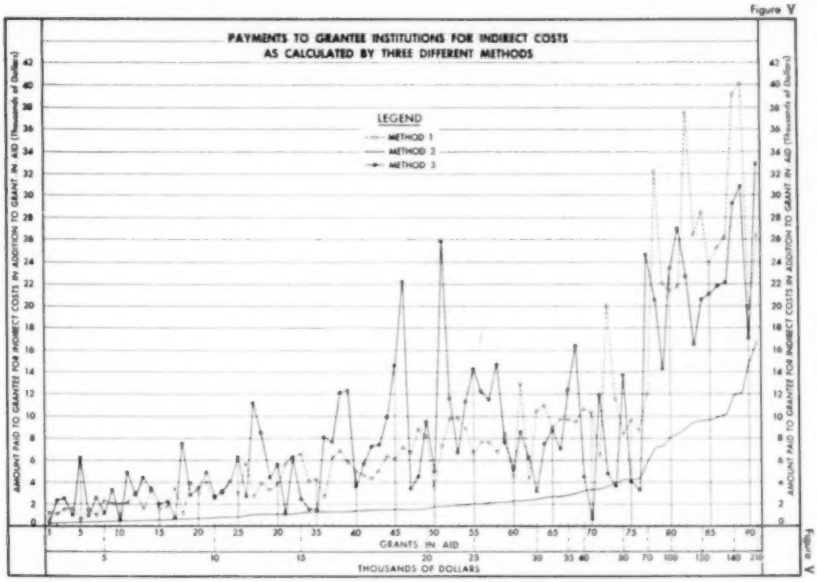
(2) An amount equal to 8 per cent of the grant.

(3) The amount of the indirect costs paid to the grantee institution after calculating indirect costs in accordance with the formula previously described.[1] (In this latter method, the amount of the grant-in-aid is added to the amount of the indirect costs and the sponsoring agency pays the grantee institution 90 per cent of the total cost.)

The amount of the direct costs of the 91 different grants-in-aid totaled $3,387,458. It is evident that there is little agreement with respect to the amount of indirect costs for any one grant-in-aid as determined by these three methods. The grantee institution was favored 50 out of 91 times by Method 3, and 41 of 91 times by Method 1. Additional payments to grantee institutions to defray indirect costs, however, would have totaled $270,999 if calculated by Method 2; $836,420 by Method 1, and $839,608 by Method 3.

It is believed that the formula[1] previously proposed does provide a method for determining the actual cost, within practical limits, of conducting any program of research. It is recognized, however, that the application of this formula to every grant-in-aid requires a considerable expenditure of time for both grantee and grantor. Therefore, it is suggested that the amount of the indirect costs be stipulated as certain percentages of the grant. The formula has served a useful purpose in providing data for determining the size of this percentage.

Figure V


PAYMENTS TO GRANTEE INSTITUTIONS FOR INDIRECT COSTS
AS CALCULATED BY THREE DIFFERENT METHODS
LEGEND
METHOD 1
METHOD 2
METHOD 3
AMOUNT PAID TO GRANTEE FOR INDIRECT COSTS IN ADDITION TO GRANT IN AID (Thousands of Dollars)
GRANTS IN AID
THOUSANDS OF DOLLARS

Considering the 91 grants as a whole, it is apparent (see Table I) that the amount of the total indirect cost is 38.7 per cent of the amount of the total direct costs. If the grants-in-aid are considered in three groups according to size, however, the relation of indirect to direct costs is as follows:

—Grants of $10,000 or less: indirect costs, 62.3 per cent of the direct costs (maximum 155.5, minimum 21.9).

—Grants between $10,001 and $30,000: indirect costs, 58.2 per cent of the direct costs (maximum 137.2, minimum 21.5).

—Grants over $30,000: indirect costs, 31.2 per cent of the direct costs (maximum 58.8, minimum 13.0).

Policy to Defray Indirect Costs

It is difficult to determine realistically the extent of the relative responsibility of grantee and grantor with respect to the portion of the total cost of conducting a program of research which each should defray. In prior years the nature and amount of research conducted was dictated largely by the human energies and physical facilities found within institutions for higher learning which, for the most part, paid the total cost of the research. Within recent years there have been created many public and private foundations and several departments of government which provide funds to support research.

Originally, most of these organizations operated on the policy that if they were to provide funds for technical assistants and adequate stores of equipment, supplies and materials, the scholars (for whom the institutions already had provided salary) could complete more research in less time than they would otherwise be able to do. Whereas such a

policy admittedly required the grantee institution to expend some of its own funds to achieve the original purpose of the grant, the financial burden was not unbearable since relatively small amounts of extra-institutional funds were available.

The amount of money contributed for support of research has increased greatly[2] as the value of its products has become more generally appreciated. Furthermore, the direction and intensity of research has changed as the result of vast sums of money being made available to support work on specific subjects. Numerous fund-granting agencies have been created to support research for the purpose of solving specific problems.

In most instances, the solving of these problems is dependent upon the catholicity of knowledge and the skills and abilities of scholars who are already employed in our institutions for higher learning. For this reason fund-granting agencies should be cautious of unduly bleeding or diverting the finances of grantee institutions since it is to these institutions that the agencies must look for the solution of their problems.

Research in the medical sciences, with its relatively small consumption of funds in the latter part of the 19th century, now has become a major consumer of large sums and provides full-time and part-time employment for many thousands of individuals. In fact, many schools of medicine today are more nearly institutions for the conduct of research than schools for training of physicians and teachers.

In certain schools of medicine, extra-institutional funds in support of research may equal or even surpass the total funds available for support of all the remaining activities of the school. Since acceptance of grants-in-aid in support of research requires grantee institutions to expend some of their own funds, it is not difficult to understand why (obviously there are other reasons as well) many of our institutions for higher learning and, in particular, schools of medicine are in such unfavorable financial condition that responsible officers are gravely concerned about the future.

In view of the above, it would seem reasonable to conclude that maximal effective research within our institutions for higher learning would be facilitated, if not actually assured, if all fund-granting agencies were to assume 90 per cent of the cost of conducting programs of research for which grants-in-aid have been made. While admittedly arbitrary, this policy has been proposed for many reasons. These include:

1. Such a policy would permit the grantee institution complete freedom in determining the nature of the research it wishes to pursue without there being any financial advantage to conducting particular kinds of research.

2. Since this policy would require the grantee institution to employ some of its own funds, the fund-granting agency would have added assurance that the grantee institution would have a strong incentive to exact the maximum return for all monies expended, thus necessitating the careful selection of sound proposals from well-qualified investigators.

3. Finally, such a policy would aid materially in alleviating the present unfavorable financial condition of our institutions for higher learning. (It is not inconceivable that the sum of $33,000,870 granted for research in the medical and allied fields in 1950[2] might have required grantee institu-

tions to expend as much as $8 million of their own funds to achieve the original purpose of those grants.)

Universal adoption of this policy on the part of fund-granting agencies might very well result in fewer grants being made unless such agencies were successful in acquiring greater resources. Should the unfortunate result be an actual reduction in the number of grants made, the consequences actually might be beneficial in that applications for grants might reflect more careful planning and critical thought on the part of the applicants.

Should this policy receive widespread adoption by fund-granting agencies, the grantee institutions should not look on the plan as a mechanism to obtain funds for expansion of educational, research and service programs for which future support is not assured. Rather, such funds should be used to maintain the physical facilities, intellectual environment, equitable remuneration for employees and those other prerequisites for good research that may properly be expected but are not always found in our institutions for higher learning.

The suggestion already has been made that an amount to be called indirect costs should be a certain percentage of the amount of the grant-in-aid. If there is widespread adoption of the suggestion that fund-granting agencies assume responsibility for defraying 90 per cent of the total cost of conducting those programs of research for which grants-in-aid are made, it would seem reasonable to suggest that this be accomplished by adding to the grant some arbitrary percentage of the amount of the grant-in-aid.

Table II illustrates what would have been paid to grantee institutions for defraying indirect costs if such costs had been determined by the complicated and time-consuming formula[1] on the one hand and, on the other, by multiplying the amount of

TABLE II

Payments to Grantee Institutions to Defray 90% of Total Cost of Research

Grants-in-aid amounting to	Number of grants-in-aid	Total of direct costs	Total of indirect costs as determined by cost formula	Additional payments to grantee to defray 90% of total cost	
				(Based on Formula)	(Based on arbitrary % of grant)*
$10,000 or less	22	$ 137,112	$ 85,419	$ 63,196	$ 63,072
$10,001 to $30,000	40	777,990	453,081	328,976	327,636
More than $30,000	29	2,472,356	771,856	447,436	449,941
In Total:	91	$3,387,458	$1,310,356	$839,608	$840,649

*For grants of $10,000 or less the percentage is 46%.
For grants from $10,001 to $30,000 the percentage is 46% of the first $10,000 plus 38% of the remainder.
For grants of more than $30,000 the percentage is 46% of the first $10,000 plus 38% of the next $20,000 plus 6% of the remainder.

TABLE III

Method of Calculating the Percentage to Be Added to Amount of Grant to Defray 90% of the Total Cost of Conducting the Research

Grants-in-aid amounting to	Amount of direct costs	Amount of indirect costs as determined by formula	Amount of total costs	90% of total costs	Difference between 90% of total cost and total direct costs	That difference expressed as a percentage
$10,000 or less	$ 137,112	$ 85,419	$ 222,531	$ 200,278	$ 63,166	46%
$10,001 to $30,000	$ 777,990	$453,081	$1,231,071	$1,107,964	$329,974	46% of $ 400,000 + 38% of $ 377,990
More than $30,000	$2,472,356	$771,856	$3,244,212	$2,919,791	$447,435	46% of $ 290,000 + 38% of $ 580,000 + 6% of $1,602,356

the grant-in-aid by a percentage which represents the weighted mean percentage of indirect costs based on the sponsoring agency paying 90 per cent of the total cost. Table III shows the method of calculating the percentage to be added to the amount of the grant-in-aid so that the sponsoring agency may defray 90 per cent of the total cost.

It is unlikely that a sufficient number of grants has been analyzed in this study to provide a totally satisfactory basis for establishing an accurate sliding scale for determining the amount of the indirect costs for grants-in-aid of all sizes. Such a scale might require that as many as several hundred grants be analyzed in accordance with the procedure outlined in this communication.

It is conceivable that an organization such as the Association of American Medical Colleges might find this a worthwhile undertaking. In the meantime, it is suggested that fund-granting agencies might closely approximate paying 90 per cent of the cost of conducting research if they would add to the amount of the grant-in-aid in this manner:

46.0 per cent when the grant is $10,000 or less;

46.0 per cent of the first $10,000 and 38.0 per cent of all remaining when the grant is between $10,001 and $30,000;

46.0 per cent of the first $10,000, 38.0 per cent of the next $20,000, and 6.0 per cent of all remaining when the grant is more than $30,000.

Summary and Recommendations

1. A study has been made of the direct and indirect costs of conducting programs of research which have been supported by the usual grants-in-aid. An analysis was made of 91 programs of research. The grants-in-aid (direct costs) amounted to $3,387,458. It was found that the grantee institutions would have had to expend an additional $1,310,356

of their own funds (indirect costs) to carry out these programs of research.

2. It has been here recommended that all agencies making grants in support of research assume responsibility for defraying 90 per cent of the cost of conducting those studies for which grants-in-aid are made. It is tentatively suggested that the most efficient way to accomplish this objective within practical limits would be to add to the amount of the grant-in-aid as follows:

—46.0 per cent when the grant is $10,000 or less;

—46.0 per cent of the first $10,000 and 38.0 per cent of all remaining when the grant is between $10,000 and $30,000;

—46.0 per cent of the first $10,000, 38.0 per cent of the next $20,000 and 6.0 per cent of all remaining when the grant is more than $30,000.

3. It is suggested that an organization such as the Association of American Medical Colleges extend this study to several hundred grants for the purpose of developing a sliding scale for determining accurately the amount of the indirect costs for grants-in-aid of all sizes.

4. It is customary when referring to indirect costs, as the expression has been used in this paper, to employ the term "overhead." It is suggested that the use of this term be restricted to those instances where institutions make contracts to cover the cost of conducting research that has little, if any, relationship to education. In such instances it might not be unreasonable for the amount of the overhead to be such that the sponsoring agency defrays 100 or more per cent of the total cost of conducting the research.

REFERENCES

1. Weaver, Harry M. "A Formula to Determine the Cost of Research." *Jour. Assn. Am. Med. Coll.* Vol. 25: 248-254, July, 1950.

2. Diegnan, Stella Leche and Miller, Ester. "The Support of Research in Medical and Allied Fields for the Period 1946 through 1951." *Science*, Vol. 115, 1-23, 1952.

The Next Twenty Years in Medicine

If modern medicine is to deal with man as a whole, teaching and research centers must learn to coordinate their activities toward this goal.

LESTER J. EVANS

ALL EVIDENCE POINTS to the fact that medicine is now in a period of critical growth. I use the word "medicine" to include that wide spectrum of knowledge, professional skills, technologies and physical facilities which in this modern day can be brought to bear in the care of the sick and the prevention of illness.

This period of critical growth, which is still in its early stages, is not yet clearly enough defined to be seen in all its proportions, but I believe that in social and scientific significance it will prove to be as profound as that period stretching roughly from 1890 to 1910 which can now be viewed quite clearly in the perspectives of history. Medicine as it was then known was coming to be viewed against the backdrop of the natural sciences, biology, chemistry and physics.

What has happened in the first part of this half-century followed quite naturally on what was taking shape in the latter part of the previous century. Imaginative and inquisitive physicians, teachers and scientists were delving into the intricacies of certain disease phenomena by the application of knowledge from the sciences; such workers continue to reveal the nature of biological, physiological and disease processes which were not even thought of 50 or 75 years ago.

But, with the intense concentration on the solution of urgent and complex problems found in the hospital ward and laboratory, it is only recently that we have begun to seek additional areas of knowledge which might be drawn upon to understand more fully human health as well as illness. This looking about is one of the characteristics of the present period of medical development—imaginative and inquisitive people are now at work across a broader front.

Among the new areas to which they are turning are the social and behavioral sciences. It is from them that more will be learned about the nature and needs of man both as an individual and in relation to other men as they collectively make up society.

The logical question which now arises is what does all this mean for

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the future of medicine? Is it possible that the concepts and practices of the past may be altered through this more complete understanding of man? When he is viewed as a whole it becomes clear that no part or function of him acts independently of any other part or function—he is really a total individual and acts as such.

The very means by which progress has been made, however, is now a threat to the fulfillment of the potentiality of dealing with man as a whole. Medicine has become fragmented and segmented. The special areas of research and practice have become so complex and involved that the relationship between them is tenuous in many instances. If medicine is to deal with man as a whole, then teaching and research centers must find the ways and means of bringing about an integration and coordination of activities in the interests of this whole person. And this integration must be brought about without destroying the excellence of anything we now have.

I have long wanted an opportunity to explore with an interested group what is involved in this reintegration of medicine. About a year ago the board of governors of the Society of the New York Hospital, the medical board of the hospital and the faculty of Cornell University Medical College decided to tackle this problem through the ambulant person or outpatient in the general medical clinic. The idea is always to keep the patient sharply in view in order that the services rendered to him can be made available to him day in and day out, whether ill or well. It also is intended that he be dealt with as a member of a family group and, further, with the full recognition that his family is a part of this community. What is hoped for in this program is included in the term "comprehensive medicine."

The achievement of this kind of service will not be as simple as it might seem when we look at the size of this and other centers, or when we think how specialized medical practice has become. Even more obviously we have come to focus our attention on the bed patient, looking only incidentally on the ambulant patient, either as he is ready to come into the hospital or to leave it.

The demonstration and practice of comprehensive medicine, it seems to me, calls for principal attention to this ambulant patient because he is society and he is walking into and out of this institution daily by the hundreds. He brings his environment with him. He does have a family. He is concerned with the day-to-day problems of living, and his illness is a part of his very existence.

Outpatient facilities, because they have been developed along the pattern of the inpatient services—the clinics even having the same names: medicine, surgery, pediatrics, gynecology, ophthalmology, neurology and so on—make it difficult for us to view this patient as a total person. Little can be accomplished in the practice of comprehensive medicine if we continue to look only at parts of the patient and those parts on separate floors and wings of the building without some means of bringing about a natural and smoothly functioning coordination.

I wish to suggest a second focal point around which the activities of an institution such as this are centered. I have already mentioned the patient; now I mention the student. As you proceed in the development of a comprehensive medical service around these two focal points I be-

lieve that you will find the clue to it in continuity—continuity of service to the patient, continuity of observation and study and continuity of relationship between the patient, his physicians, the student and other health workers.

There is another aspect of comprehensive medicine, completeness of service, which I shall pass over here because time is limited and you already possess many of the necessary components.

Continuity of service will call for an administrative mechanism which bridges the functions of the inpatient and outpatient activities and will include those in the home and in the community. A natural sequence will be the pulling together of the activities of many separate clinical departments and specialties. In time one may cease to speak of referring the patient from this department to that, but rather to think of the services coming to the patient. The patient should come to feel more at ease as his needs are met in a satisfying manner. A further element of continuity of service is that members of the various professional groups who deal with patients will increasingly work together so that the job done by one blends smoothly into that done by another.

If continuity of service can be achieved, then the way is opened for continuity of observation and study. I believe that generally we are not yet prepared to appreciate all that may be learned by following patients and well people through either portions or the whole of their life spans. Obviously the natural histories of many illnesses will be more completely revealed. We will come to look upon illness in different terms than we do now as we observe the psychological, biological and social processes of adaptation and adjustment between a person and his environment. Then we will have extended opportunity to learn about normal behavior and function. What is health when not defined as absence of disease? What are the inherent characteristics of individuals which seem to make them susceptible or immune to certain kinds of diseases or states of ill health?

Further, and I should like to emphasize this, there will open up a completely new area for research in medical care. True, many have been intimately concerned with medical care, but what we know is segmental in nature—a bit here and a bit there. Many questions must be answered: What is involved in complete or comprehensive medical care? Who gives it? Who pays for it? What are the relative tasks of the several professional groups involved in complete service to the patient? This field of research can be tackled only when an institution such as this one commits itself to service and study on a group of patients who will be followed indefinitely.

Finally, I come to education. Education will continue to be a primary responsibility of the medical center. If the practice of medicine is based upon a relationship between two people, one asking help of the other as well as the application of a large variety of technical procedures, then future practitioners must have an opportunity during their student days to learn by experience what this means. We can look on this clinic for comprehensive medicine as providing the setting for one of the very exciting experiments of the moment in medical education only if this fact is recognized.

In order to give the student full opportunity to experience the mean-

ing of this continuing relationship between himself and the patient, the senior year clerkship at Cornell has been rearranged. Instead of a series of blocks of time devoted to special services, one-half of the year now will be devoted to a continuous clerkship in which several of the major departments will cooperate. During this time the students will take care of the same patients, following them from the home into the clinic and hospital and back as there is need. The teachers will be from several special fields, all working together except as there is need for certain specialized teaching. The student thus should gain greater understanding of the way in which he can bring the knowledge and skills from the several fields of medicine to bear upon the problems presented by his patients.

Now I want to say just a word about the opportunities and the evolving responsibility for providing graduate training in these broader concepts of medical service. This year three of your younger staff members have gone from this institution to other universities where they will have an opportunity to apply some of the concepts of comprehensive medicine in different settings. One has just accepted the deanship of a medical school in New England, another is actively engaged in the reorganization of the entire outpatient service of a publicly-supported hospital in a Western city where it is hoped to provide continuing service to patients, a third is going to the full-time professorship of medicine in a midwestern medical school and already has stated as his objective the practice and teaching of comprehensive medicine.

I think I have answered the question: What does the practice of comprehensive medicine mean for the future of this institution and for the future of medicine in this community? As regards this institution, it will enable you to fulfill the goals of service, education and leadership. For the future of medicine in this community you will have an opportunity to demonstrate, practice and teach medicine which has its roots in the lives and needs of people.

Ratio of Applicants to Population by States

HAROLD A. DAVENPORT

IN AN EFFORT to give our committee on admissions an overall picture of the availability of medical education and of applicants in each state, I have prepared a table giving certain state comparisons (see page 332). Basic information has been obtained from the 1950 census and from an article, "Study of Applicants," by John M. Stalnaker, published in the Journal of MEDICAL EDUCATION (Vol. 27, 39-43, January 1952). The figures apply to the classes entering all medical schools in the academic year 1951-52.

The table includes the number of medical schools by states (column 1), the number of applicants per 100,000 population from that state for all medical schools (column 2), the total number of applicants accepted per 100,000 population (column 3), the number of freshmen per 100,000 population (column 4), and the total number of freshmen accepted (column 5).

Column 2 indicates to some extent the degree of intensity of interest in medicine as a career. Financial or other factors, however, may prevent an able student interested in the study of medicine from applying. While the cost of medical education in state schools is less than in the others, almost all such schools limit their enrollment to residents of the state.

Column 3 indicates the degree of success in placement of applicants. The number of applicants accepted for medical schools in the 1951-52 freshman class was 5.0 per 100,000 population for the United States. In some states it was as low as 1.9 (Nevada) and in others as high as 9.9 (Utah). In general the number of applicants accepted per 100,000 population is low for states without medical schools and higher where there is a state-supported school. The one clear exception is New Jersey with no medical school and a high acceptance rate.

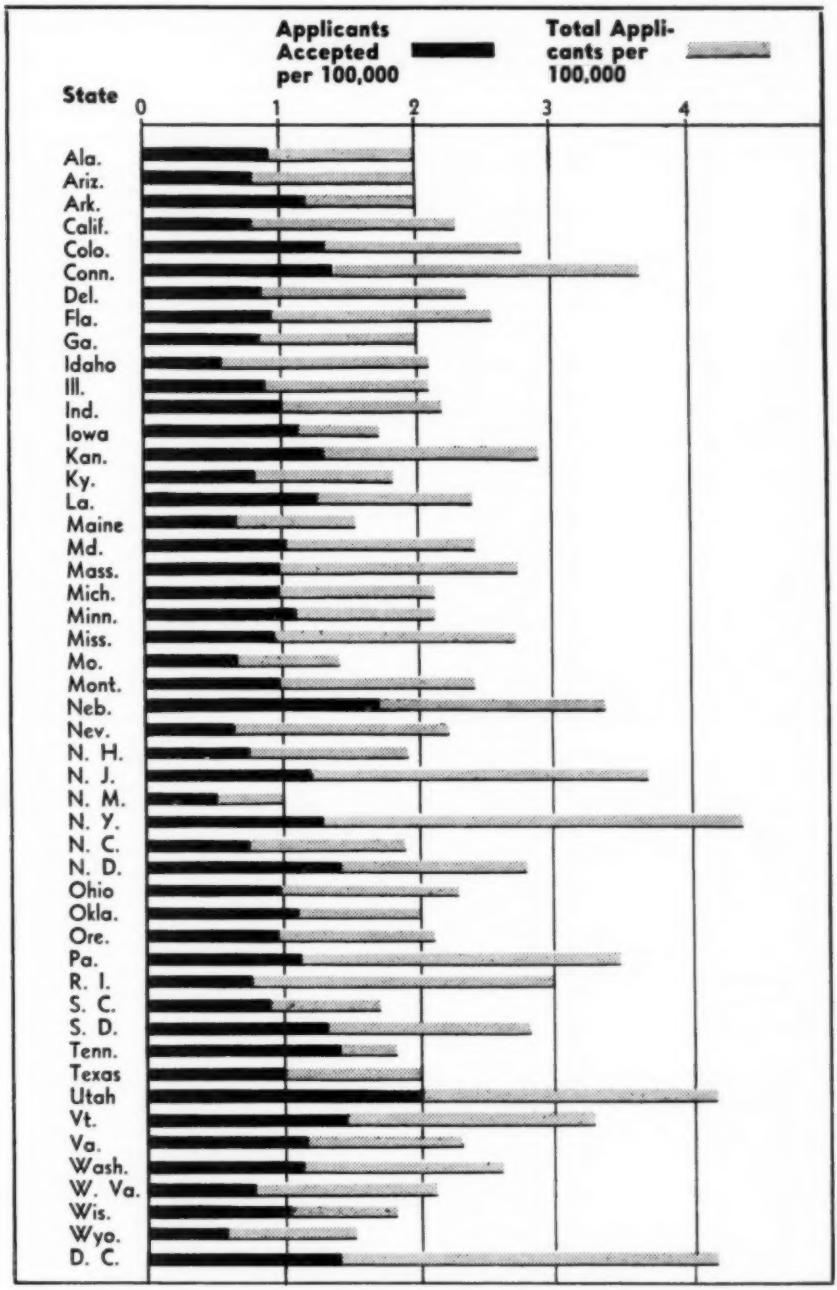
Young men and women living in New York, Utah, New Jersey, Connecticut and the District of Columbia are more likely to want to become doctors than residents of other states. On the other hand, those from New Mexico, Missouri, Iowa, Wyoming and Maine are least likely to be interested in medicine.

Column 4 shows the availability of medical education in the various states. With the privately-controlled schools, students from out of the state are welcome and, in many cases, are even sought.

Probably not all the data can be taken at face value. The number of

Dr. Davenport is assistant dean and chairman of the committee on admissions at Northwestern University Medical School.

Ratio of Applicants to Population by States



applicants and of admitted students varies from year to year. The smaller the figures, the greater the likelihood of variation.

Interrelationships between sources of students and schools available, as it affects the overall picture of admission, may be found in the data.

ACCEPTANCES IN FRESHMEN MEDICAL CLASSES, 1951-52

State	Number of Medical Schools (1)	Total Applicants per 100,000 (2)	Applicants Accepted Per 100,000 (3)	Freshmen per 100,000 Population (4)	Freshmen Admitted (5)
Alabama	1	10	4.2	3.8	80
Arizona*	—	10	3.6	—	—
Arkansas	1	10	5.7	4.7	90
California	5	11.5	3.6	3.1	328
Colorado	1	14	6.4	6.1	80
Connecticut*	1	18.5	6.6	4.0	80
Delaware*	—	12	4.1	—	—
Florida*	—	13	4.4	—	—
Georgia	2	10	4.0	4.5	152
Idaho*	—	10.5	2.6	—	—
Illinois	5	10.5	4.2	6.1	562
Indiana	1	11	5.0	3.8	150
Iowa	1	8	5.5	4.6	120
Kansas	1	14.5	6.4	6.3	120
Kentucky	1	9	3.9	3.4	100
Louisiana	2	12	6.3	9.5	253
Maine*	—	7.5	3.2	—	—
Maryland	2	12	5.2	7.7	179
Massachusetts*	3	13.5	4.8	6.6	306
Michigan	2	10.5	4.8	4.4	276
Minnesota	1	10.5	5.5	4.4	130
Mississippi	1	13.5	4.5	2.6	56
Missouri	3	7	3.2	6.5	255
Montana*	—	12	4.9	—	—
Nebraska	2	17	8.4	12.3	161
Nevada*	—	11	1.9	—	—
New Hampshire	1	9.5	3.6	4.5	24
New Jersey*	—	18.5	5.8	—	—
New Mexico*	—	5	2.4	—	—
New York	9	22	6.3	6.0	893
North Carolina	3	9.5	3.3	4.7	190
North Dakota	1	14	7.1	5.8	36
Ohio	3	11.5	4.9	4.1	320
Oklahoma	1	10	5.4	4.5	101
Oregon	1	10.5	4.7	5.4	82
Pennsylvania*	6	17.5	5.6	6.6	688
Rhode Island*	—	15	3.8	—	—
South Carolina	1	8.5	4.4	3.3	70
South Dakota	1	14	6.5	5.5	36
Tennessee	3	9	7.0	9.2	303
Texas	3	10	5.0	4.6	356
Utah	1	21	9.9	8.0	55
Vermont	1	16.5	7.2	13.3	50
Virginia	2	11.5	5.8	4.8	156
Washington	1	13	5.6	3.2	75
West Virginia	1	10.5	3.8	1.6	31
Wisconsin	2	9	5.1	5.4	183
Wyoming*	—	8.5	2.8	—	—
D.C.	3	21	7.0	36.7	290
Total or Average	80	12.9	5.0	4.9	7,381

*No government-supported medical school in the state.

The Conference on Preventive Medicine in Medical Schools

A CONFERENCE ON Preventive Medicine in Medical Schools will be held November 3-7 at the Broadmoor Hotel, Colorado Springs, Colo.

The purposes of the conference, which is co-sponsored by the Association of American Medical Colleges and the Conference of Professors of Preventive Medicine, are to examine and better define the objectives and functions of departments of preventive medicine in medical schools and to achieve a sense of direction toward attaining these goals.

The conference is being supported by funds and personnel from: the Rockefeller Foundation, the Commonwealth Fund, the National Foundation for Infantile Paralysis, the John and Mary R. Markle Foundation, the National Tuberculosis Association, the Metropolitan Life Insurance Company and the Public Health Service.

Attendance is by invitation and the total delegation will be limited to about 125 persons. Delegates will be teachers of preventive medicine, deans and representatives of teaching departments of medical schools and a few individuals from related fields.

The five-day conference will be organized as a work conference.

The focus will be on the role of a department of preventive medicine in a medical school, and delegates will be assigned to one of five work committees. Delegates may state preferences for committee assignments and these preferences, as well as special contributions to be made by individuals, will be taken into consideration.

Committees will meet for the first two or three days of the conference as discussion groups. The final two days will be devoted to results of committee deliberations and will be shared by all participants. Results of the conference will constitute a main topic of discussion at the AAMC meeting the following week, and a summary conference report will be published.

The various committees and outlines of their specific work are:

I. Curriculum Content and Methodology; chairman, DR. E. GURNEY CLARK.

The committee will consider the scope, present practices and desirable future patterns designed to achieve the objectives that have been set forth in the broad field of preventive medicine and public health. Included in this study are:

1. The body of knowledge which should be included in the training of medical students to equip them in the field of preventive medicine and public health.

2. The optimal time in the course of training in teaching the various elements.

3. General methodology of teaching.

This committee has overall responsibility for consideration of the total problem, including integration of the special fields. The other committees, however, are expected to deal with their special problems in a comprehensive manner and at the same time to consider services, teaching content and methodology of their special fields.

II. Departmental Interrelationships; chairman, DR. GLEN R. LEYMASTER.

This committee will consider the role of the department of preventive medicine in a medical school with respect to departmental interrelationships under several general headings:

1. Objectives of undergraduate medical education and the department of preventive medicine as they affect interdepartmental relationships of teaching, service and research.

2. Teaching relationships, including integration of course work in fields of overlapping interests, joint seminars, joint appointments and so forth.

3. Service relationships with other departments, including such aspects as biostatistical assistance, consultation, diagnostic laboratory service, operational functions with or within other departments, and comprehensive medical care.

4. Research, as far as it may involve other departments within the medical school and university.

5. Optimum personnel and budget in relation to the above subjects.

III. Comprehensive Medical Care; chairman, DR. C. HOWE ELLER.

This committee will consider:

1. A definition of "comprehensive medical care."

2. The responsibility of (a) the medical school in general, and (b) the department of preventive medicine in particular, for comprehensive medical care.

3. Current examples of participa-

EXCELLENT meeting room facilities are available at the Broadmoor for both the Association meeting on November 10-12, and the Conference on Preventive Medicine in Medical Schools, November 3-7. The conference is co-sponsored by the Association and the professors of preventive medicine.

tion in programs by departments of preventive medicine for comprehensive medical care with specific reference to such approaches as hospital care, outpatient services and home care services.

4. Evaluating student participation in comprehensive medical care.

5. Responsibilities and opportunities of departments of preventive medicine for research in comprehensive medical care with current examples.

IV. Community Health Activities; chairman, DR. THOMAS D. DUBLIN.

Members of this committee will be concerned with these questions:

1. Why use the community in medical education?

2. How can the community best be utilized and adapted to serve as the environmental laboratory of a department of preventive medicine?

3. How can the medical schools help improve the quality of community health activities and the practice of preventive medicine in the community?

4. What are the newer bodies of knowledge and skills needed to carry out teaching, research and service in community health activities?

V. Research; chairman, DR. DAVID D. RUTSTEIN.

It is self-evident that all departments represented in a medical school should contribute to the advancement of knowledge by research and teaching. Specifically, the purpose of this committee is to define, in broad terms, the role of research in departments of preventive medicine in medical schools as follows:

1. Outline and illustrate the research disciplines which might be represented in a department of preventive medicine.

2. Define those areas of research in which departments of preventive medicine should be expected to make significant contributions.

3. Define and illustrate the research contributions which departments of preventive medicine can make in collaboration with other departments and agencies.

Dr. Lloyd Florio of the department of preventive medicine and public health, University of Colorado School of Medicine, is chairman of the conference. Members of the planning committee are: Dr. Duncan W. Clark; Dr. John P. Hubbard; Dr. Thomas A. LaSaine; Dr. Hugh R. Leavell; Dr. Rutstein; Dr. John H. Dingle, co-chairman; Dr. Ray E. Trussell, co-chairman; Dr. Ward Darley, co-chairman for AAMC; Evelyn Rahm, conference executive secretary, and Dr. Florio.

Meeting Preview

Plans for the Association's 63rd Annual Meeting, November 10-12

THE PLACE OF the department of preventive medicine in the medical school will receive special attention at the 63rd Annual Meeting of the Association of American Medical Colleges, November 10-12 at the Broadmoor Hotel, Colorado Springs, Colo. The meeting will be preceded by a Conference on Preventive Medicine in Medical Schools.

Monday: The 1952 Annual Meeting will open officially at 9 A.M., Monday, November 10, with the presidential address by Dr. George Packer Berry. Immediately following his address, the group will divide into 10 discussion sections.

The sections will meet between 10 A.M. and 1 P.M., and will discuss the following subjects:

—Round Tables 1A and 1B: Curriculum Content and Methodology of a Department of Preventive Medicine and Public Health.

—Round Tables 2A and 2B: The Departmental Relationships of a Department of Preventive Medicine and Public Health.

—Round Tables 3A and 3B: The Department of Preventive Medicine's Teaching Responsibilities in the Field of Comprehensive Medical Care.

—Round Tables 4A and 4B: The Department of Preventive Medicine's Teaching Responsibilities in the Field of Community Health Activities.

—Round Tables 5A and 5B: Research in Departments of Preventive Medicine and Public Health.

The Monday afternoon session will begin with an address by Dr. David P. Barr, professor of medicine at Cornell University Medical College and physician-in-chief at the New York Hospital. Dr. Barr will discuss integration of preventive medicine in the teaching of internal medicine.

The remainder of the Monday afternoon session will be devoted to open hearings on the annual reports of Association standing committees.

At 5:30 P.M. there will be an exhibit of historical medical prints and a social hour through courtesy of Smith, Kline and French Laboratories.

The annual dinner will be held Monday evening at 7 P.M. Included on the program will be an after-dinner address by Dr. Alan Gregg, vice president of the Rockefeller Foundation, and presentation of the annual Borden Award in the Medical Sciences. This Award, consisting of $1,000 in cash and an inscribed gold medal, is given for outstanding research in medicine conducted by a member of the faculty of a member college.

Tuesday: The Tuesday morning session will open with an address by Harlan H. Hatcher, president of the University of Michigan. Following his

OFFICERS AND EXECUTIVE COUNCIL

Bachrach photo
GEORGE P. BERRY

JOSEPH C. HINSEY

WARD DARLEY

C. N. H. LONG

STANLEY DORST

EDWARD L. TURNER

VERNON W. LIPPARD

JOHN B. YOUMANS

DEAN F. SMILEY

address the annual business meeting will be called to order. During this session reports of officers, standing committees and representatives of related organizations will be presented.

Two special events have been scheduled for 9 P.M., Tuesday. One of these is a program of films arranged by the Medical Audio-Visual Institute, to be presented in the Broadmoor theater. The other, an exhibition of square dancing in costume, will take place in the hotel ballroom.

Wednesday: The first Wednesday session, scheduled to begin at 9 A.M., will be devoted to summaries of the 10 Monday morning round table discussions. This will be followed by the final meeting, at which resolutions will be presented and 1953 officers will be installed.

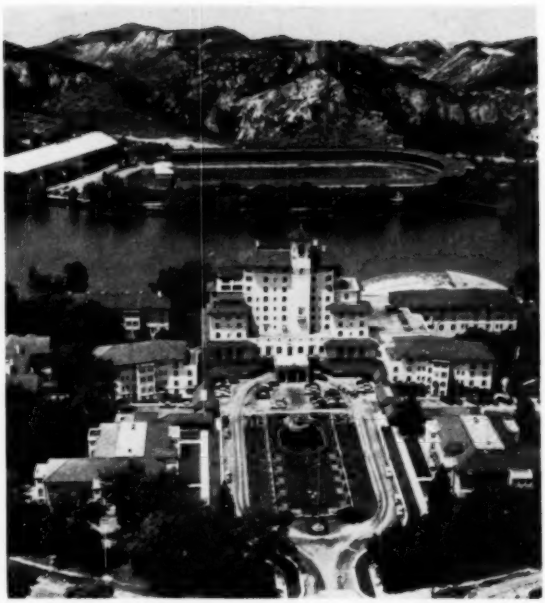
Films: In addition to the Tuesday evening program, the Medical Audio-Visual Institute will present other films. The complete program, designed to illustrate indivi ıalized teaching with motion pictures, will include: Magnetic Sound-on-Film; a demonstration with participation, Monday, 2:30 P.M.; Buy Them and Edit Them; a demonstration, Tuesday 2 P.M.; examples of cancer short films project and the MAVI distributing program, Tuesday, 9 P.M.

Hotel Reservations

Requests for reservations at the Broadmoor Hotel for the Association meeting should be made directly to the hotel. Rates are on the American plan: $14 per day for a single room; $12 per day per person in a double room. Only a limited number of single rooms are available.

Travel

Colorado Springs is about 70 miles south of Denver and can be reached by plane or train. Several airlines and



MOUNTAINS frame the Broadmoor Hotel, Colorado Springs, where the Association will hold its Annual Meeting this November.

railroads provide good transportation to Denver, where connections to Colorado Springs may be made.

The following current schedules are given as possible aids in planning travel and may not necessarily be in effect at the time of the conference. To be present at the opening session of the meeting at 9 A.M., Monday, November 10, it probably will be necessary to plan to arrive on Sunday.

Air schedules to Denver:

UNITED AIRLINES, from East and West coasts.

CONTINENTAL, from Kansas City and El Paso (some flights stop in Colorado Springs).

BRANIFF, from Memphis and Dallas (some flights stop in Colorado Springs).

WESTERN, from Minneapolis.

Flying time between Denver and Colorado Springs is approximately a half hour. Braniff flights leave Denver at 7 A.M. and 2:35 P.M.; Continental flights leave Denver at 5 A.M., 7:40 A.M., 12:15 P.M., 5:30 P.M. and 6 P.M.

Train schedules to Colorado Springs:

CHICAGO ROCK ISLAND AND PACIFIC: Leave LaSalle St. Station in Chicago, 1:55 P.M. (CT); arrive in Colorado Springs, 8:35 A.M. (MT). Departure from Colorado Springs, 1:45 P.M. (MT); arrival in Chicago, 8:50 A.M (CT).

CHICAGO, NORTHWESTERN: Leave Northwestern Station in Chicago, 5 P.M. (CT); arrive Denver, 8:30 A.M. (MT); arrive Colorado Springs via DENVER AND RIO GRANDE railroad, 10:45 A.M. Departure from Colorado Springs, 10:45 A.M. (MT); arrival in Denver, 3:30 P.M.; arrival in Chicago, 9:35 A.M. (CT).

MISSOURI PACIFIC: Leave St. Louis, 4 P.M. (CT); arrive in Colorado Springs, 8:01 A.M. (MT). Departure from Colorado Springs, 5:48 P.M. (MT); arrival in St. Louis, 12:01 P.M. (CT).

The Journal of

Medical Education

Vol. 27 No. 5 *Editorials and Comments* SEPTEMBER 1952

Give-Aways and Gifts

IT IS A popular impression that most of the problems of medical education can be solved by sufficient funds. Medical educators themselves point out with alarm the increasing costs of educating a medical student, the growing costs of research inadequately covered by overhead and the great burden of unreimbursed costs of services rendered by medical schools to their community's indigent patients.

There can be derived only one conclusion, which is that the medical schools are guilty of participating in, if not actually operating the nation's greatest "give-away" program. This is fundamentally and economically unsound, and it is not going to be corrected by pump primings with subsidies—governmental or otherwise. The answer calls for sound, thorough study followed by better management.

Those guilty of being careless with their patrimony are, also, equally culpable when it comes to accepting gifts. Some medical schools seem to follow the adage, "never look a gift horse in the mouth." Not unfrequently schools accept gifts from individuals or private corporations without asking for a minimum 8 per cent overhead. They decry the fact that pharmaceutical houses hire away their biochemists, pharmacologists and physiologists and then turn about and urge federal agencies to build on their campuses hospital and research facilities whose appetite for personnel, at salaries higher than medical schools can afford, is prodigious.

Pharmaceutical houses have learned, at least partially, in the last few years that it is shortsighted to raid too severely the source of supply of scientifically trained personnel. There can be no doubt, however, that at the present time there is a deficit of trained auxiliary medical personnel and the situation is going to be worse before it is better.

Hospital and research laboratory expansion call for additional nurses, technicians, physiatrists and medical stenographers. Hill - Burton funds alone provide 88,000 new hospital beds and some 350 health centers. The Veterans Administration calls for approximately 14,500 beds, which are in deans' committee hospitals and therefore adjacent to medical centers. Also, the Atomic Energy Commission is not far behind in its demands for scientific personnel. Even in large cities the drain on research, technical, hospital and stenographic personnel will be severe. University hospitals and medical schools will be depleted of employees, who will be lured by better salaries, often shorter hours, better sick benefits and better retirement allowances than the average school can afford. What starts as a fine symbiotic relationship too often ends in parasitism from which the host needs time to recover and adjust. Federal agencies in general are not producers of personnel; they are voracious consumers.

Medical schools are caught in a vicious cycle of costs rising as salaries must be increased to meet com-

petition from outside; and schools, as the main source of training facilities for auxiliary personnel, dissipate the energy and time of their medical school faculties and some of their attenuated budgets that are meant primarily for medical students. The salvation of medical schools is to adopt a strict policy of demanding payment for services rendered and of looking far into the mouths of their gift horses.—R. Y.

Our Readers Write

Research Costs

To the Editor:

I WAS VERY much interested in the editorial on the Cost of Medical Education on page 278 of the July issue of the Journal of MEDICAL EDUCATION. Whoever wrote it, in criticizing Mr. Henricksen's and my paper on the "Cost of Undergraduate Medical Instruction," by the sentence "some of the costs of research are really chargeable to the education of medical students," apparently missed the footnote to our paper. This footnote said:

"Obviously research is necessary for good medical education in order to stimulate the staff and students (Davison, W. C.: The Future of Medical Education, *J. Am. Med. Coll.* 21: 223-235, July 1946), but some accounting yardstick is necessary to determine the optimal or 'normal' amount per student or faculty member which should be provided by university funds. Some years ago, Dr. Lewis H. Weed and one of us tried to calculate the percentage of the Johns Hopkins budget used for this 'normal' research and 'guessed' that it was between one-third and one-half of the total. The situation at Duke is similar, so we therefore assumed that the funds in the present university budgets (table 1) at least represent the minimal amount of research support needed for good teaching and that the unpaid portion of the overhead for the 'extra' outside research funds should not be charged to medical education."

We emphasized that "some" of the costs of research are really chargeable to the education of medical students, but when the grants for research are equal to the cost of medical education as in many of our medical schools at present, this "extra" research should not be chargeable to the education of medical students.

Wilburt C. Davison, Duke University

Teaching Clinic

A Note on the Teaching of Psychiatry

HENRY D. LEDERER

THE NEED FOR more extensive instruction in psychodynamics and psychopathology in the undergraduate medical program has posed a difficult problem for departments of psychiatry. It often is not possible to schedule more psychiatric courses without risking the danger of overcrowding still further an already heavily laden four-year course of medical study.

One solution would involve a radical revision of the curriculum. Another has been the growing practice of integrating psychological information into the body of instruction in other medical disciplines. The inclusion of psychosomatic ward rounds and seminars in the routine of certain departments of internal medicine represents such a constructive integration.

Conjoint teaching can provide an opportunity for a realistic presentation of psychodynamics and, at the same time, combat the tendency to isolate psychiatry from other medical fields. It seems that the earlier in the curriculum this integration occurs, the more helpful it would be. Consequently, attempts now are being made to include psychological lectures and data in the preclinical courses.

Dr. Lederer is an assistant professor in the department of psychiatry, College of Medicine, University of Cincinnati.

Such a teaching opportunity was presented in 1949 in the College of Medicine of the University of Cincinnati. The professor of pharmacology had become convinced that one chapter in the teaching of pharmacology—the topic of placebos—usually was inadequate because of the lack of consideration of the essential psychologic aspects of the problem. Consequently, he requested that the department of psychiatry provide some instruction to supplement and parallel certain laboratory studies in the field of placebo action.

In discussions with the students, the psychiatric lecturer first reviewed the use of placebo controls in drug experiments. He next made some comments about the frequency of the practice of prescribing placebos. Patients' responses to placebos were then described but at first were not psychodynamically explained. An attempt was made to help the student project himself into his own future medical practice where he would probably be prescribing placebos. All these data were intended to stimulate the students' interest and their wish to understand the psychodynamic factors.

At this point the lecturer faced the too facile explanation provided in the concept of "suggestibility" and tried to demonstrate its sterility. He pointed out that the idea of suggestibility raised, rather than answered, many interesting questions about patients.

He then offered a more dynamic view by postulating certain possible emotional states and needs operating in the patient. Matters such as anxi-

ety, regressive dependency, wishes for acceptance by an interested authorative parental figure and the regressive hope for magical help were cited as examples of the emotional trends in many patients. In addition, the students were introduced to the current cultural stereotypes regarding physicians; that is, the role of skillful, benign authority; the expected benefactor; the hoped-for affectionate, giving, noncritical parent.

With these conceptions as background, the constructive use of a placebo then was discussed as a symbol of good faith, of emotional giving and of the physician's recognition of the patient's dependent and regressed emotional position. This use of a placebo as a technique of cementing the doctor-patient relationship was contrasted with its possible misuse as a way of deceiving and ridiculing a dependent patient.

The therapeutic response to a placebo was discussed in terms of the satisfaction of the patient's emotional needs for a security-providing and anxiety-relieving relationship rather than as a measure of his credulity or stupidity. Still further it was pointed out that under these circumstances of emotional satisfaction, very real improvements can and frequently occur in the pathophysiologic processes causing the patient's original discomforts. In other words, the therapeutic response to a placebo was presented as a highly significant psychosomatic event in itself.

The general response of the pharmacology class to this teaching experiment was positive. Several students became sufficiently interested to write their required semester term papers on topics concerning placebo psychology. Some of the frequent and common resistances to psychodynamic information seemed considerably less than those encountered in some other more specific teaching of psychiatry.

In summary, an experiment on the integration of psychiatric teaching in the pharmacology course for second-year medical students is reported as a sample of the ways in which opportunities may arise for the modification and improvement of the teaching of psychodynamics.

NEWS DIGEST

Professional Incomes Up

Figures recently released by the Office of Business Economics of the Commerce Department show that professional incomes went up last year. The average physician earned approximately $12,500 in 1951, an increase of $980 over his 1950 income.

Other professions surveyed by mailed questionnaires were law and dentistry. Generally physicians, both independent and salaried, reported an income increase of 13 per cent while dentists and lawyers reported increases of about 10 per cent. The independent physicians generally made about $4,000 more than those on salary. Of an estimated 175,000 physicians, some 38,500 are salaried.

New Nursing Organization

This fall nursing has a new national organizational structure. Instead of the six national organizations formerly concerned with professional nursing, there are only two. They are the American Nurses' Association and the National League for Nursing. The league is for all those interested in improving nursing services and education—nurses and non-nurses alike. The American Nurses' Association is exclusively for professional nurses. The two organizations, reorganized after a decade of planning, will work together toward better nursing care.

Health Plans Gain Widely

More persons were participants in voluntary health insurance plans during 1951 than ever before, according to a recent survey by the Health Insurance Council of the Institute of Life Insurance. Some 85,991,000 persons were covered by hospital insurance plans, an increase of 12 per cent over the year before. Surgical expense protection showed a 20 per cent increase, with 65,535,000 persons participating.

The oldest form of voluntary health insurance in the United States, protection against loss of income resulting from disability, showed a 6 per cent increase, covering 39,702,000 subscribers. The newest form of insurance, protection against medical expenses, increased 28 per cent to cover 27,723,000 persons.

Organizations surveyed included insurance companies, Blue Cross, Blue Shield, local medical societies and independent plans adopted by industry and private clinics.

To Head Armed Forces Library

The appointment of Lieut. Col. Frank B. Rogers, M. C., as director of the recently established Armed Forces Medical Library has been announced by Secretary of the Army Frank Pace Jr., with the concurrence of the Secretary of Defense.

Five civilians have been appointed to an advisory group for the library. They are: Dr. S. C. Davison, dean of the Duke University Medical School; Dr. Richard Shryock, Johns Hopkins medical historian; Dr. Basil G. Bibby, director of Eastman Dental Dispensary, Rochester; Janet Doe, librarian, New York Academy of Medicine, and Dr. Karl F. Meyer, director, Hooper Foundation, University of California.

The Armed Forces Medical Library is the largest institution of its kind in the world. It serves as a central medical library for the Army, Navy and Air Force and as a national library for medicine and related sciences. The library's extensive facili-

ties also are available to medical research and development contractors, other governmental agencies and civilian physicians and medical scientists of all countries.

Heads Army Research

Dr. Stanhope Bayne-Jones, brigadier general, retired, and former wartime medical consultant to Secretary of War Henry L. Stimson, has assumed his new duties as civilian technical director of Army medical research. Dr. Bayne-Jones will serve in the office of the Army Surgeon General. Between 1935 and 1940 he was dean of the Yale medical school.

Tuition Plan

Some 400 schools and colleges are now participants in the unique Tuition Plan in New York City, founded in 1938, which permits parents to pay monthly for the education of their children while the school or college receives its fees in full before the beginning of each term. The plan makes it possible to budget for education, and is gaining in popularity because of increasing costs of going to college.

Unique Laboratory Established

A unique laboratory, to be established at the University of Michigan, will serve as a watchdog of public health. It will test all equipment used in food service according to standards drawn up by industrial and public health committees from all states. A "seal of approval" will be issued for that equipment meeting regulations. The program, to be run by the National Sanitation Foundation at the School of Public Health, will lead to uniform nationwide standards for equipment, food handling and other sanitary problems of food service.

Commission on Health Needs

The President's Commission on the Health Needs of the Nation is continuing its series of one-day open public hearings in principal cities this month. Scheduled for September are meetings in Minneapolis, St. Louis, Cleveland, Detroit and San Francisco. Purpose of the regional meetings is to get a broad representative opinion on vital health problems.

Medical School Expansion

The opening of medical schools this fall will find many of them busy with plans for expansion. In some cases, this will involve an extension of the curriculum from two to four years. Other schools will enlarge their facilities with new medical buildings and teaching hospitals.

The November 1952 issue of the Journal of MEDICAL EDUCATION will carry a roundup story on expansion and construction at medical schools throughout the country during the past several months.

Meetings

Psychiatric Education

The Second Conference on Psychiatric Education, under the joint auspices of the Association of American Medical Colleges and the American Psychiatric Association, was held at Cornell University, Ithaca, N. Y., June 19-25. This year's meeting concentrated exclusively on the graduate training of psychiatrists.

A final report of the 1952 conference will be issued approximately a year from now. The editorial board is comprised of doctors John C. Whitehorn, professor of psychiatry at Johns Hopkins University; Vernon W. Lippard, dean of the Yale University School of Medicine; William Malamud, professor of psychiatry at Boston University; and Francis J. Brace-

land, psychiatrist-in-chief of the Institute of Living, Hartford, Conn.

The report of the 1951 conference, entitled "Psychiatry and Medical Education," is now available from the American Psychiatric Association, 1785 Massachusetts Ave., N. W., Washington 6, D. C., for $1.

Medical Administrators

The 4th annual meeting of administrators of Great Plains and Rocky Mountain medical schools was held July 10-11, at Brook Forest near Denver, Colo. The meeting was attended by representatives from the following state medical schools: North Dakota, South Dakota, Iowa, Wisconsin, Missouri, Nebraska, Oklahoma and Colorado. The session was held to give medical school leaders the opportunity to discuss mutual problems such as student admissions, scholastic requirements, finances and related problems, and to increase cooperation and working agreements between the schools.

National Medical Association

Members of the National Medical Association met in Chicago Aug. 11-15 for their 57th annual convention. Du Sable High School was the scene of technical and medical exhibits and of general meetings. Clinics were held throughout the week at Provident, Billings, Illinois Research, County and Children's Memorial hospitals. More than 2,000 Negro physicians attended the sessions. Dr. Whittier C. Atkinson of Coatsville, Pa., was installed as 1952-53 president of the group.

American Physiological Society

The 5th annual autumn meeting of the American Physiological Society will be held Sept. 4-6 at New Orleans, under the joint sponsorship of Tulane and Louisiana State universities. All scientific sessions will be held on the Tulane campus and the special session for scientific exhibits, movies and demonstrations will be held at the Louisiana State University medical school building near Charity Hospital.

Teaching Developments

Hospital Extension Program

Dr. K. K. Sherwood has been appointed medical director of King County Hospital, clinical teaching hospital of the University of Washington medical school. In this capacity he will be responsible for the development of a home care program, or hospital extension program, of the chronic disease unit of the hospital. Present plans involve the utilization of this hospital extension program as part of the training of interns and residents as well as undergraduate students in the school of medicine.

The program is being developed to determine if it will help meet some of the increasing needs for chronic care, particularly in that group of patients who can be cared for adequately in their homes. Close coordination with the state health department and with social workers is essential. Students in nursing also will gain valuable experience. The additional costs of initiating this program are being paid by the state health department as part of its overall welfare program.

The program will provide an experience in home care for undergraduate medical students and a hospital extension program that will be of value to interns and residents. It should also lower materially the costs of medical care for that group of chronically ill patients who must have hospital extension service or else be placed in a hospital at a much higher total per diem cost.

Medical Students to England

Fourteen Duke University medical students are spending three months working in English hospitals. Most of them are working at St. Mary's, Guy's and St. Bartholomew's. The others will spend the time in pediatrics under Sir James Spence in New Castle. This marks the 23rd year Duke students have been able to elect this plan of meeting some of their requirements in senior courses at another school.

Dean W. C. Davison explained, "From the opening of the medical school in 1930, students have been encouraged to spend one term at another medical school in this country or in England. Not only have the students profited from these transfers, but they also have brought back new ideas which helped the rest of us. In addition, this program has reduced the isolation of medical schools and has made students and faculty realize that good medicine is taught and practiced at institutions other than their own school."

Interdepartmental Appointment

First appointee as an interdepartmental professor under a new plan at Johns Hopkins University is Dr. Ludwig Edelstein, visiting professor in Greek. The unique appointment, made at the request of a number of departments, will make it possible for Dr. Edelstein to teach in any department any subject for which he is qualified.

Dr. Edelstein's professorship is the first appointment in the proposed plan to group Hopkins professors in academic subjects related to each other rather than restricting their research and teaching activities to one specific subject. These professors maintain their connection with their own departments, but can form additional connections with one or more groups to which their work is related. In line with this, for example, Dr. Edelstein may conduct his course in the fields of history, classics or philosophy. For 13 years he was affiliated with the university as an associate professor of history of medicine.

Pro-Tem Professorships

Continuing a custom inaugurated last year, Dr. George T. Harrell Jr., of Bowman Gray School of Medicine, served as professor of medicine, protempore, at the Georgetown University Hospital during the week of May 11-17. Dr. Harrell directed the department of medicine at both the hospital and the medical school in place of Dr. Harold Jeghers, professor of medicine and physician-in-chief of the hospital. The purpose of the protem professorship is to broaden the outlook of students and staff members by bringing in ideas from other medical centers.

Aeromedical Educators Meet

Medical education in the Air Force received a thorough review in a July meeting of aeromedical leaders at the Randolph Field headquarters of the School of Aviation Medicine. Heading the group were Brig. Gen. Edward J. Kendricks and Brig. Gen. Earl Maxwell, both of the Air Force Surgeon General's office, and Otis O. Benson Jr., commandant of the school.

Among the subjects they discussed were education policies and curricula for the coming year, residencies and internships for medical personnel and professional activities in Air Force hospitals and other aeromedical institutions.

The Tactical Air Command has arranged to provide residency training for three medical officers who completed their second year of advanced training in aviation medicine at Johns Hopkins University in June. The course they were taking is part of a five-year career program to provide more aeromedical specialists for the Air Force.

Another new precedent in postgraduate education for Air Force personnel was set when the Surgeon General

approved a period of residency training at the University of Texas Medical Branch for Capt. Earl T. Carter of the School of Aviation Medicine. The unique arrangement will allow Captain Carter to continue his studies toward a Ph.D. on his return to the Randolph Field institution.

Army Postgraduate Courses

The Army Medical Service will conduct 17 short postgraduate courses in surgery, psychiatry and other subjects of major medical importance during the last six months of 1952. The instruction is open to both military and civilian physicians. It is being given at six large army teaching hospitals and the Armed Forces Institute of Pathology, Washington, D. C.

Dogs for Research

Dogs that would cost one state university $50,000 annually to raise for research use are obtained from the local pound for $750, a recent survey conducted by the National Society for Medical Research discloses.

The survey, based on cost information received from medical schools and laboratories, shows the average cost to raise one dog for one year, or to the usual point of medical usefulness, to be $125. In contrast to this figure, the cost for obtaining pound animals is under $10 per dog. In some cases the only cost involved is that of transporting them. These dogs would otherwise be destroyed by the pound.

Ford Foundation Consultant

John M. Stalnaker, director of studies for the Association of American Medical Colleges, will act as a consultant during 1952-53, on a part-time basis, to the Fund for the Advancement of Education. He will be concerned with the field of scholarship study.

Grants and Awards

National Fund for Medical Education

More than $2,500,000 has been allocated to the medical schools of the nation during the last 12 months by the National Fund for Medical Education. Of this sum, $1,417,752 came from the medical profession itself through the American Medical Association, the various state societies, the women's auxiliaries and individuals.

S. Sloan Colt, president of the fund, stated that in the latest distribution of funds totaling $1,226,537, each of the nation's 72 four-year schools would receive $15,000; each of the 6 two-year schools, $7,500; and the one six-year school, $11,250. In addition, 74 medical schools will share $90,287 contributed by individual physicians.

The annual goal of the National Fund is $5 million.

National Science Foundation

The National Science Foundation recently announced 29 research grants, totaling $263,535, which include $20,000 to the University of Colorado School of Medicine, $4,600 to Vanderbilt University School of Medicine and $17,500 to the University of Louisville School of Medicine. Awards are for fundamental investigations of embryonic development, nutrition and regulatory biology, respectively.

During the fiscal year ending June 30, NSF approved 98 research grants totaling $1,181,175. Recipients were 60 institutions in 34 states, Hawaii and the District of Columbia.

American Heart Association

Dr. Irving S. Wright, president of the American Heart Association, has announced 72 grants-in-aid totaling

$361,552 for research into heart and blood vessel diseases. This brings the total for the fiscal year to $578,172. Investigations are being conducted at institutions in 20 states, the District of Columbia, Montreal and Beirut, Lebanon.

Infantile Paralysis Foundation

A total of $2,395,039 in March of Dimes funds, one of the largest awards ever made by the National Foundation for Infantile Paralysis, has been allocated for polio research and professional education to 26 medical schools, hospitals, research institutions and educational organizations in the United States and one in Canada.

The announcement of the March of Dimes grants also disclosed that the national foundation will continue its practice of paying its share of the indirect costs of research. The board of trustees has approved approximately $300,000 for paying "a justifiable portion of the indirect costs of research which are not reflected in the budget of a research project." These costs include heat, power and light, building maintenance and other similar operating and administrative charges which are not directly related to the research but which nevertheless drain funds from the university.

Public Health Service

The Public Health Service has announced 249 new research grants totaling $2,188,699. In addition, renewal grants were made for 228 projects. Large grants received by schools included more than $82,000 for cancer research to the University of Tennessee College of Medicine in conjunction with the Memphis and Shelby County health departments, $25,000 for cancer training at the Temple University School of Medicine and $24,449 to Duke University for four research projects. Four Chicago medical institutions, including Northwestern University Medical School and the Chicago Medical School, received a total of $105,773 in grants for cancer research.

Rockefeller Foundation

The Rockefeller Foundation and the General Education Board recently announced grants of approximately $10 million in the second quarter of 1952 for educational and scientific research programs. Scientific grants included three gifts totaling $121,000 to the University of California.

Fellowships Available

American Heart Association

New research applications in the cardiovascular and related fields are now being accepted by the American Heart Association for studies to be conducted during the year beginning July 1953, it was announced by Dr. Louis N. Katz, chairman of the association's scientific council.

Applications for research fellowships and established investigatorships should be submitted by September 15, 1952. Applications for research grants-in-aid may be filed up to December 1, 1952. Information and forms may be obtained from the medical director, American Heart Association, 1775 Broadway, New York 19.

Fulbright Awards

The Committee on International Exchange of Persons has announced the 1953-54 competition for Fulbright awards for university lecturing and post-doctoral level research in Europe and the Near East.

Application forms and additional information concerning the competition may be obtained from the Conference Board of Associated Research Councils, Committee on International

Exchange of Persons, 2101 Constitution Ave., Washington 25, D. C. Applications for university lecturing and advanced research must be postmarked no later than October 15, 1952.

Award in Orthopedic Surgery

An annual prize of $1,000, donated by the Kappa Delta Sorority, has been announced by the American Academy of Orthopedic Surgeons for the best research related to orthopedic surgery and performed by an American citizen in the United States. Research must be presented to the Committee on Scientific Investigation of the American Academy of Orthopedic Surgeons before November 1, 1952. Researchers interested in competing for this prize may secure further information from Dr. Claude N. Lambert, 104 S. Michigan Ave., Chicago 3. Dr. Lambert is chairman of the award committee for 1952.

Ford Foundation

The Ford Foundation Board on Overseas Training and Research has announced a new foreign fellowship program designed to help young college graduates increase their understanding of Asia and the Near and Middle East, to help specialists obtain advanced training and to enable young men and women already working in their chosen fields to study, live and work in these areas. Applicants must be under 35 years of age. Application forms may be obtained from The Ford Foundation, 575 Madison Ave., New York City.

College Briefs

Albany Medical College

The Thomas Ordway Memorial Teaching Fund, which will be used to endow a teaching position in the department of medicine, has been established. Dr. Ordway, who died on May 12, was dean from 1915-37 and was widely known throughout eastern New York State, western Massachusetts and Vermont. The fund is sponsored by the staff of Albany Hospital, the faculty and the alumni association.

Boston University

The department of pharmacology has as its new head Dr. EARL H. DEARBORN, who comes from Johns Hopkins University School of Medicine, where he has been assistant professor of pharmacology since 1949. He replaces Dr. GEORGE L. MAISON, now director of research and development at the Riker Laboratories in Los Angeles.

University of Buffalo

Chancellor T. RAYMOND MCCONNELL has announced the establishment of a program in physical therapy offering both a degree and a certificate in the field. It will be given by the school of medicine and the Chronic Disease Research Institute. The curriculum is planned along two lines. A four-year program will lead to a bachelor of science degree with a major in physical therapy. A 12-month course leading to a certificate of proficiency in physical therapy is offered only to students of advanced standing.

University of Southern California

New associate dean of medicine this fall will be Dr. GORDON E. GOODHART. Dr. Goodhart is a graduate of Occidental College, did graduate work at U.S.C. and received his medical degree from Stanford in 1943.

University of California (S.F.)

The following full-time doctors recently received promotions to professor: VERNE T. INMAN (orthopedic surgery), HERBERT G. JOHNSTONE

(parasitology), WILLIAM O. REINHARDT (anatomy), DAVID A. WOOD (oncology); to assistant professor: MORRIS E. DAILEY (medicine), DONALD J. JENDEN (pharmacology and toxicology), REINHARD S. SPECK (microbiology), WILFRED E. TORESON (pathology), KAHN UYEYAMA (medicine); to associate professor: BENJAMIN LIBET (physiology), MAURICE SOKOLOW (medicine).

University of California

Dr. WILLIAM J. KERR followed one of his own prescriptions when he retired this summer, four years short of the retirement age after 36 years of service on the faculty.

Dr. CHARLES B. HUGGINS, professor of surgery in the Ben May Laboratory for cancer research at the University of Chicago, will be a visiting professor during the autumn quarter.

University of Chicago

A 25th anniversary celebration commemorating the opening of the clinical departments is scheduled for October 2-4. A program of symposia and round table scientific discussions is planned. Among those scheduled to address the group are Chancellor FRANKLIN MURPHY, Dr. EVARTS GRAHAM, Dr. ALFRED BLALOCK, Dr. JOHN RUSSELL, Dr. LESTER DRAGSTEDT and Chancellor LAWRENCE KIMPTON.

Duke University

Duke Hospital has just opened a new speech service for harelip and cleft palate children of North Carolina. Six children from throughout the state attended a six-week summer session under the direction of the social service department of Duke Hospital in cooperation with state agencies. The new service is part of a growing speech therapy program to develop better treatment methods.

Dr. JAMES V. WARREN, president of the American Federation for Clinical Research, has been appointed professor of medicine. He was formerly professor of medicine and physiology at Emory University.

Emory University

Dr. EUGENE B. FERRIS JR. has been named professor of medicine and chairman of the department. He has served as assistant director of the department of internal medicine at Cincinnati General Hospital since 1940.

Georgetown University

The annual Kober Lecture was delivered this year by DR. ARTHUR L. BLOOMFIELD, professor of medicine at Stanford University. The subject of the lecture was "The Principles of Bacterial Infection in the Upper Air Passages."

Dr. RUSSELL B. DILEY has been named assistant professor in radiology and oncology.

George Washington University

Funds totaling $27,099 have been granted to permit the continuing of four surgical research projects. Dr. BRIAN BLADES, professor of surgery, is principal investigator on all of the projects. Funds include $6,606 from the Army Surgeon General's office, grants of $11,005 and $10,249 from Public Health Service and $9,239 from the Veterans' Administration.

Hahnemann Medical College

Grants totaling $23,023 have been received recently by the college for research in various departments. Largest grant of $10,000 was from the National Association of B'rith Sholem Women as a renewal contribution for the Laboratory of Cardio-Pulmonary Research.

University of Illinois

Dr. RICHARD J. WINZLER has been appointed professor and head of the department of biological chemistry. Only 37 years of age, he is one of the youngest department heads at the college of medicine.

The senior class has established a student aid fund in honor of Dr. HENRY G. PONCHER, former professor of

pediatrics and head of the department. Funds will assist deserving students. It is anticipated that students who receive gifts from this source, when financially able, will make contributions to the fund.

Establishment of the Louis Bothman Fellowship in Ocular Pathology was recently announced upon reception of a grant in the amount of $5,000 from the Louis Bothman Memorial Fund, Inc., of Phi Delta Epsilon fraternity.

Jefferson Medical College

Dr. JOHN ENGLISH DEITRICK has been appointed Magee professor of medicine and head of the department with a membership on the executive faculty. He was formerly associate professor of medicine at Cornell University School of Medicine and director of study, Survey of Medical Education, Inc., of the American Medical Association.

The Alumni Annual Giving Fund reports that 2,713 graduates had contributed $88,989 to this year's fund. Gifts made in the first four years total $423,009. Funds are devoted to support of preclinical teaching salaries.

College of Medical Evangelists

As a result of summer-long studies of examinations at the college, it was decided that freshmen are to have final examinations in all courses, in addition to not more than one interval exam per quarter. Sophomores also get finals in courses, but intermediary exams are only diagnostic in nature. Junior and senior year students will have comprehensives at the conclusion of the academic year.

Research contracts totaling $64,000 have been awarded to the department of ichthyology. An $18,400 grant from the Army Chemical Corps went to Dr. BRUCE HALSTEAD for his poisonous fish project. The Chemical Corps grant is to be a cooperative venture with their scientists and not a mere allocating of funds.

Meharry Medical College

HAROLD D. WEST, Ph.D., was elected president of the college by the board of trustees. Dr. West has been a member of the faculty since 1927 and was professor of biochemistry and chairman of the department. For the past two years the affairs of the college have been administered by a five-man interim committee of which Dr. West was vice-chairman.

Dr. DANIEL THOMAS ROLFE has been appointed dean of the school of medicine. He is chairman of the department of physiology and pharmacology.

Dr. W. F. BERNELL JAMES, formerly associate professor of obstetrics, has been promoted to the rank of professor and named chairman of the department.

Dr. E. PERRY CRUMP has been appointed professor of pediatrics and has been made chairman of the department.

University of Minnesota

A continuation course on treatment of diseases of the chest will be presented on October 16-18 in conjunction with the American College of Chest Physicians and the Minnesota chapter of the American Trudeau Society at the Center for Continuation Study. The course is intended primarily for physicians engaged in general practice.

A continuation course in gastro-intestinal roentgenology for radiologists will be presented October 20-25. The course will be given at the Center for Continuation Study and will cover all aspects of roentgenologic examination of the gastro-intestinal tract. Visiting faculty members will include: Dr. OLLE OLSSON, University of Lund; Dr. RICHARD R. SCHATZKI, Cambridge, Mass.; Dr. FREDERICK E. TEMPLETON, University of Washington Medical School; Dr. PAUL C. SWENSON, Jefferson Medical School; Dr. LEON SCHIFF, University of Cincinnati. On Wednesday, October 22, the annual Leo G. Rigler lecture will be presented by

Dr. B. J. KIRKLIN of the Mayo Foundation.

In conjunction with the Minnesota Public Health Association, a continuation course in tuberculosis for lay persons will be presented at the Center for Continuation Study October 27-29. Emphasis will be placed on the public health aspect of tuberculosis.

New York University—Bellevue Medical Center

Dr. JEROME S. TOBIS has been appointed director and associate professor of a newly-created department of physical medicine and rehabilitation at the college. A rehabilitation program was previously operated by the institution as a division of the department of medicine, but the new department makes it possible to increase the scope of the work, adding a physical therapy school and work shop.

The retirement of Dr. ISIDOR GREENWALD as professor of chemistry was recently announced. He joined the faculty in 1931.

State University of New York at Syracuse

The department of medicine announces its annual fall postgraduate course in medicine and electrocardiography. Courses will begin on Thursday, October 2, and will continue each Thursday through November 20. They will be given at the University Hospital of the Good Shepherd at Syracuse. The course in medicine will be on the significance of symptoms and the course in electrocardiography will be basic electrocardiography. The fee will be $15 for each course. Communications should be addressed to the office of the dean, State University of New York at Syracuse, College of Medicine, 766 Irving Ave., Syracuse 10, N. Y.

Harvard Medical School

Dr. PAUL C. ZAMECNIK has been appointed to the permanent teaching and research staff. He will be associate professor of medicine at the Massachusetts General Hospital. Other recent appointments include Dr. ARTHUR T. HERTIG as Shattuck professor of pathological anatomy, a principal teaching and research post. Dr. REIDAR F. SOGNNAES, a leader of research on the growth and structure of teeth, as Charles A. Brackett professor of oral pathology in the school of dental medicine; and Dr. DAVID WEISBERGER, an authority on diseases of the mouth, as professor of dental medicine.

Indiana University

Friends from throughout the state and the Bloomington campus joined with the medical center staff on June 12 in honoring J. B. H. MARTIN, who retired June 30 after 19 years as administrator of the medical center and a total of 39 years with the university. Mr. Martin was intimately associated with the establishment and development of the center. He is being succeeded as administrator by Mr. EDMUND J. SHEA, assistant administrator for the past 13 years, who was installed recently as president of the Indiana Hospital Association.

Johns Hopkins University

Dr. RUSSELL A. NELSON has been named director of the hospital succeeding Dr. EDWIN L. CROSBY, director since 1946, who resigned to become executive head of the Joint Commission for the Accreditation of Hospitals.

University of Louisville

Dr. RUDOLPH J. NOER has accepted an appointment as professor of surgery and chairman of the department. He also will serve as director of surgery at Louisville General Hospital. Dr. Noer has been assistant dean of Wayne University College of Medicine.

Marquette University

A course in physical therapy will be offered for the first time this fall,

according to Dr. JOHN S. HIRSCHBOECK, dean. The new curriculum will be a four-year course including two years of preclinical study in the Marquette College of Liberal Arts and two years in the medical school. Clinical training will be given by means of a supervised internship in city institutions.

University of Maryland

The incoming freshman class will number 104 students representing 10 states and the commonwealth of Puerto Rico.

Recent appointments include: Dr. RUSSELL S. FISHER, professor and head of the department of legal medicine; Dr. JAMES R. KARNS, assistant professor of medicine and director of the student health service; Dr. DIETRICH C. SMITH, assistant director of the postgraduate committee.

Grants from the Frank C. Bressler Reserve Fund recently announced amount to $32,559.

University of Oregon

A number of junior medical students have expressed an interest in learning more of the problems and practices of general practitioners. Through the local chapter of the Student AMA, letters have been written to general practitioners in Oregon explaining this student interest and asking them if they would help the students in a voluntary summer preceptorship plan.

Correspondence from physicians in Oregon already indicates enthusiasm for the program with individual arrangements being worked out between the doctor and the student. Students will spend some or all of their summer vacation with these interested doctors. The program is not a part of the medical school curriculum at this time.

University of North Carolina

Dr. R. A. ROSS, formerly professor of obstetrics and gynecology at Duke University, has been named professor and chairman of the department of obstetrics and gynecology. Dr. EDWARD C. CURNEN JR., formerly of Yale, has been appointed professor and chairman of the department of pediatrics. Dr. ERNEST WOOD, formerly at Columbia University, will serve as professor and chairman of the department of radiology.

Northwestern University

Three professors will retire this month from their teaching activities. They are Dr. KARL A. MEYER, a member of the staff since 1925 and professor of surgery since 1945, Dr. ARTHUR METZ, who has taught surgery for the past 10 years and Dr. FREDERICK W. MERRIFIELD, who has been on the staffs of both the medical and dental schools since 1926 teaching oral surgery.

University of South Dakota

Recent appointments include: Dr. F. E. KELSEY, professor of pharmacology and chairman of the department of physiology and pharmacology; Dr. MAX A. HEINRICH JR., assistant professor in pharmacology; Dr. EUGENE C. PIRTLE, assistant professor of microbiology.

Temple University

Temple University recently received $135,674.68 from the Fels Foundation for support of the Fels Research Institute of Temple University.

Dr. VICTOR C. VAUGHAN III has been appointed associate professor of pediatrics. He formerly was assistant professor of pediatrics at Yale.

University of Tennessee

Dr. A. KENNON, instructor of physiology, has joined the staff of the United States Naval Radiological Defense Laboratory in San Francisco. He will do research on thermal burns which may be received from an atomic explosion.

Two visiting professors will be on the staff of the division of physiology through September. They are Dr. WILLIAM DOYNE COLLINGS, associate

professor of physiology at Michigan State College and Dr. JOHN RAYMOND JOHNSON, director of the department of physiology at the University of Ottawa.

Midsouth physicians are being given an opportunity to select the postgraduate courses to be offered by the postgraduate department. All Tennessee physicians and others within a 150-mile radius of Memphis are being surveyed by a coordinating committee of physicians. Questionnaires have been mailed.

University of Texas School of Medicine

Dr. E. S. MCLARTY has been appointed director of the general practice preceptorial program which is being developed in cooperation with the Texas Academy of General Practice and which has been made available for fourth-year medical students. Students are assigned for three months of preceptorial work with general practitioners in various parts of Texas as selected from a panel.

Tulane University

Dr. WALTER S. WILDE, associate professor of physiology, spent his third consecutive summer at the laboratories of the Oak Ridge Institute of Nuclear Studies. He continued research on radioactive measurements of the heart muscle use of chemicals during heart action. His assistant, J. M. O'BRIEN, and graduate physiology students J. M. GINSBERG and H. B. KELLY worked with him. Dr. Wilde had grants from the AEC and from the Life Insurance Medical Research Fund.

Vanderbilt University

Recent appointments include: Dr. ELLIOT VOSS NEWMAN, Joe and Morris Werthan professor of experimental medicine; Dr. JOHN WILLIAM HILLMAN, assistant professor of surgery; Dr. ROBERT I. CARLSON, associate professor of surgery; Dr. CHARLES RAWLINSON PARK, professor of physiology and head of the department. Recent retirees include Dr. CHARLES SUMMERS ROBINSON, professor of biochemistry since 1931, who became professor of biochemistry emeritus as of July 1. Dr. PAUL DUDLEY LAMSON, professor of pharmacology and head of the department since 1925, became professor of pharmacology emeritus on the same date.

University of Vermont

Dr. GEORGE A. WOLFE JR. has been appointed dean of the college of medicine and professor of clinical medicine. He succeeds Dr. WILLIAM E. BROWN who retired June 30. Prior to his appointment at Vermont, Dr. Wolfe was director of the outpatient department of New York Hospital and assistant professor of clinical medicine at Cornell.

Medical College of Virginia

Through an error in the July issue of the Journal of MEDICAL EDUCATION, news about the medical college was incorrectly carried with the University of Virginia items. At that time it was announced that gifts and grants for the year 1951-52 totaled $2,843,597. Included was the bequest of $2,250,000 from the late ADOLPH D. WILLIAMS of Richmond. Interest on the bequest is to be used for medical scholarships and fellowships and in the A. D. Williams Memorial Clinic.

University of Virginia

Scholarships for the academic year 1951-52 amounting to $35,938 have been awarded to 71 students. Approximately one out of every four students received some scholarship aid.

University of Wisconsin

Dr. HARRY A. WAISMAN has been appointed associate professor of pediatrics, returning to the school where he received his doctor of medicine and doctor of philosophy degrees. He has been associated with the University of Illinois since 1947.

Audiovisual News

Long Life for Medical Teaching Films

THE TEST OF time is a hard one for most medical teaching films. The factors which predispose to the long life of medical films never have received the careful attention which they deserve nor have the past lessons of wastage, misapplied effort and early obsolescence been generally learned.

Many thinkers in medical visual education in this country and abroad have considered the critical problem of premature film obsolescence. Indeed, the pleas for "basic" film teaching materials stem almost as much from a recognition of the risk of an early outdating of films as from curriculum demands. The factors which predispose to obsolescence therefore must be observed more accurately, understood more fully and controlled more realistically, since today, for reasons of inadequate distribution, medical films will only slowly and unevenly reach their audiences, and must not be outmoded before they have a fair opportunity to be used.

Evaluation of a large number of professional medical films* by the Medical Audio-Visual Institute has indicated that there are aspects of both content and presentation which predispose to long life or to early retirement. The not yet completed history of medical motion pictures by Adolf Nichtenhauser gives a 40-year-long perspective to the existence of these factors. Some of the aspects of obsolescence afflict all motion pictures: contemporary styles and customs, temporary name and fame and film technological change. Other aspects are peculiar to medical films: nomenclature, methods and materials of diagnosis and therapy, medical theories and interpretations. In planning and production, shrewd judgment of the elements of early obsolescence will increase the life expectancy of each medical film, will lower the cost of film utilization per student and will overcome one of the serious objections to the establishment of school and departmental film purchase plans.

Timeless Films

There are many areas of medicine where basic facts and routine methods have been accepted for decades. Carefully prepared motion pictures covering this material may be virtually timeless by standards of current use. In general, the basic sciences lend themselves to long-lived motion pictures, while the clinical sciences predispose to early change. A very few examples will be illustrative.

In embryology, Bradley Patten's "The First Heart Beats and the Beginning of Circulation in Living Embryos" (1932). In cytology, Warren Lewis' "Dividing Normal Adult Rat Fibroblasts in Tissues Cultures" (1934). In parasitology, Malcolm Ferguson's "The Life Cycle of Diphyllobothrium Latum" (1950). In physiology, Richard Webb's and Paul Nicoll's "Subcutaneous Blood Flow in the Bat" (1948). In surgical pathology, Hilger Jenkins' "Diseases of the Gall Bladder" (1949). In bronchoesophagology, the endoscopic film atlases of Paul Holinger, one example of which is "The Infant Larynx"

*Studies on film evaluation have been conducted with the support of the Rockefeller Foundation, the National Cancer Institute and the National Heart Institute, Public Health Service.

(1946). In orthopedics, the "Surgical Approaches to the Joints" series of LeRoy Abbott, J. B. de C. M. Saunders and Robert Churchill (1949-52). In psychiatry, the "Mental Symptoms" series of the Canadian Department of National Health and Welfare (1952).

It is unfortunate that there are all too few identified classical rare cases like the film "Rabies" made in 1928 by Julius H. Hess. It is even more unfortunate that physical diagnosis, roentgen physiology and pathology, epidemiology of infectious disease, developmental pathology, classical disease syndromes—to mention only a few areas—have not yet received the timeless and expert film coverage they cry for.

Films with General Factors of Obsolescence

Three examples will indicate the nature of the general factors of obsolescence which afflict medical films. Two are advances in film technology, one a case of the fleetingness of fame. In 1935 kodachrome color film was introduced; immediately all surgical films with their tarry blood and their two-dimensional flatness were ready to be supplanted by the three-dimensional effects and great realism of color film. In 1951 RCA marketed the first magnetic sound-on-film recorder-projector which could be used by medical educators[1]; virtually all silent films were thereby ticketed for early exchange of most of their titles for the much more facile tape sound. In 1934 the Mead Johnson Company began the making of a film series in pediatrics which presents distinguished physicians lecturing upon their special contributions; when the most recent of the films was released in 1949 the earlier were already a tribute to the elusiveness of individual name and fame, however precious they may turn out to be as historical portraits of worthy men of medicine.

Films with Medical Factors of Obsolescence

A very large proportion of currently available medical films naturally concerns itself with the latest advances in medicine. Many of these motion pictures derive from clinical investigators who are reporting their research on film. Many more films, notably those from pharmaceutical companies, concern themselves with new therapy, for it is the business of commercial concerns to display their wares in order to sell their products.

A. Diagnosis: Diagnostic films are speedily outdated because refinements of method quickly and fatally change details, even where principles remain. Individualistic instructors hasten to discard visual tools which do not agree with their own approaches in every detail. A single example, "The Surgical Treatment of Congenital Pulmonary Valvular Stenosis," a well produced film by George Humphreys and Warren Sturgis, unfortunately was based on the Brock procedure. Completed in 1951, it was already outdated in 1952 because of the advances in surgical management of congenital heart disease.

B. Therapy: Films on therapy are very ephemeral. The woods are full of film hopes broken on the wheel of medical progress. Examples are legion, for films on disease management are the stock-in-trade of all medical operational programs, including health agencies, governmental units, drug houses, et al. A classic example is the Public Health Service film, "Gonorrhea," produced but never released because it was completed in 1942, the year the film's hero, sulfathiazole, was supplanted by penicillin. The excellent British film, "Scab-

ies 1946," was revised from its 1942 original doubtless primarily because of its section on therapy; note the dated title which fears for further changes. Upjohn Company's "Heparin in the Treatment of Thrombosis" is not only biased, but was outdated before it was released. Wyeth Company's "Clinical Use of Hyaluronidase" is a frank film essay on a new agent; it is a film designed for intensive use, and for early retirement or revision as new clinical research dictates.

A very few films on therapy are important enough to be preserved as historical records of the corner-turning achievements of medicine. Such is Philip Hench's report film on the first cases of rheumatoid arthritis treated with ACTH compounds (1949).

C. Surgery: Surgery should be specially mentioned, since it claims films in great numbers. Surgical procedures lend themselves to motion pictures in color, and techniques are always changing. Surgical films are therefore highly susceptible to brief lives, usually limited to showing by their authors only.

D. Theories and Interpretations: Theories are elaborated to give continuity and logic to observations of nature, to cover gaps in observation and to form the basis for new experimentation. The observable facts often lend themselves to multiple and divergent interpretations. Theory and interpretation alike are fruitful sources of film obsolescence.

Examples of these problems are clear in J. M. Neilsen's "Introduction to Aphasia" (1950), a Veterans Administration film which portrays the "connectionist" concept of neural action, a theory held untenable by many neurologists and neurosurgeons. In Arnold Gesell's "The Embryology of Human Behavior" (1950), the theory of reciprocal interweaving is not commonly held by other workers in human development.

Animated drawings are prone to be vulnerable to this type of outdating, inasmuch as certain animation pictorializes material which cannot now be photographed, such as chemical energy exchanges in Army's "Inside the Cell," and other animation realistically presents material which is only assumption or hypothesis, as in the egg-laying sequence of "Manson's Blood Fluke."

Narration is peculiarly prone to the inclusion of controversial interpretive statements. Fortunately the sound track may be switched off or magnetic sound tracks may be added by the instructor himself.

Films of Mixed Life Expectancy

The broad coverage orientational or instructional film suffers peculiarly from danger that the outdating of a single portion will retire the entire film. Or to state it conversely, relatively timeless sections of films are cast away with the ephemeral portions. Varick Company's "The Management of the Failing Heart" (1948) has a section advocating digitoxin; this section critically commits the entire 40 minutes to a highly controversial approach to digitalization. The American College of Surgeons' film on "Injuries of the Peripheral Nerves" (1949) is obsolete in its section on nerve repair, and inadequately considers the English contributions; yet it has much that is fundamental and unchanging.

Conclusions and Recommendations

All medical film planning and production which suitably considers film life expectancy hinge on the questions: how can we produce this

film to assure its maximum life and effective use, and what portions of this film are likely to be out of date soon?

1. Nothing can replace a broad and judicious *knowledge* of content and presentation and disciplined use of that knowledge.
2. *Consultation* must be assured at each stage of planning and production; to this consultation all participants must bring a high order of integrity and objectivity.
3. *Precise identification of potentially obsolescent materials* must be achieved; these may then be managed in several possible ways:
   (a.) By exercise of *caution* in all considerations of nomenclature, theories and interpretations, diagnosis and treatment.
   (b.) By *elimination* of dangerous contents, if this is feasible, perhaps by their relegation to printed auxiliary materials.
   (c.) By *segregation* of material in various ways: by interpolation of titles with corresponding sound track silences, so that the section lends itself to *self-editing* by the user,[2] or it can be removed and replaced by the producer whenever *revision* is required; by means of *trailers* which follow the end title; or by preparation of *separate short interlocking films* rather than a single omnibus, films which may be shown consecutively if desired.
4. Films which are obviously short-lived, but for which sufficient need exists to justify production should be considered for *low budget production*, and in every case for *rapid and intensive distribution*. A short film life may become a happy one through intensive utilization.
5. Films with identifiable obsolescent elements may achieve *effective utilization* notwithstanding their shortcomings by a number of measures: (a) by use of film parts only; that is by editing out parts which are to be discarded or parts which are to be preserved; (b) by editing other footage into the film to change or modify its message; (c) by altering the sound track either by simple switching off and verbal adlibbing, or by addition of magnetic sound-on-film from the instructor's own prepared narration.

There are many rewards for good management of factors of film obsolescence. There are greater acceptance, wider and more intensive utilization, and greater values for the educational dollars spent on medical motion pictures.—DAVID S. RUHE.

REFERENCES

1. Ruhe, D.S.: Medical Education and Magnetic Sound-on-Film. *Jour. Med. Ed.* 27:184, May 1952.
2. Ruhe, D.S.: Buy Them and Edit Them. *Jour. Med. Ed.* 27:282 July 1952.

MAVI Office Moves

Offices of the Medical Audio-Visual Institute of the Association of American Medical Colleges were moved on September 1 to AAMC headquarters, 185 N. Wabash Ave., Chicago 1. MAVI formerly occupied space in the New York Academy of Medicine building. Administrative consolidation and geographic centralization of services are gained through the transfer.

Summaries of Film Reviews

These brief notes on some medical motion pictures on cardiovascular diseases are intended to afford an offhand idea of the desirability and use of the film under review. They are drawn from the detailed evaluative reviews prepared by the Medical Audio-Visual Institute of the Association of American Medical Colleges.

White Thrombo-Embolism in the Minute Cheek Pouch Vessels of the Hamster

16 mm., color, silent, 427 ft., 17 min.

Year of Production: 1951; **Country of Origin:** U.S.A.; **Authors and Producers:** Brenton R. Lutz, Ph.D., George P. Fulton, Ph.D., and Robert P. Akers, Ph.D.
Distribution: Brenton R. Lutz, Ph.D., Department of Biology, Boston University, 675 Commonwealth Ave., Boston 15; **Sale:** $95; **Loan.**
Accompanying Material: Mimeographed description sheet, with list of references to the authors' published literature.

Summary: This report film demonstrates the formation of thrombi and emboli following trauma, hematogenous infection and transplant neoplasia in the blood vessels of the hamster cheek pouch. Although the film is signally successful in presenting a unique experimental method and in documenting certain observations possible in the hamster cheek pouch, it is not visually organized for teaching purposes and is insufficiently analytic in its details to be used without careful preparation of the audience and much additional commentary. The thrombosis and embolism sequences are particularly effective.

Audience: Investigators and students in pathology.

Congenital Malformations of the Heart Part II—Acyanotic Congenital Heart Disease

16 mm., color, sound, 495 ft., 13 min.

Year of Production: 1952; **Country of Origin:** U.S.A.; **Sponsor:** Dr. and Mrs. Maimon Samuels, Seattle, and the National Heart Institute, Public Health Service; **Producer:** University of Washington School of Medicine; **Technical Adviser and Script:** Robert F. Rushmer, M.D., Department of Physiology and Biophysics; **Direction and Animation:** Ralph E. Pearson; **Camera:** Jack Newby; **Medical Illustration:** Jessie W. Phillips.
Distribution: Instructional Materials Center, University of Washington, Seattle.

Summary: This workmanlike illustrated lecture film presents a number of congenital lesions of heart and great vessels, grouping them under the single clinical yardstick of absence of cyanosis. Although several important acyanotic congenital defects are conspicuously missing and although the film presents too much too rapidly, it will be useful both as an introduction and a review of the scientific content, providing it is integrated with other teaching material in the hands of a competent instructor.

Audience: Medical students, general practitioners.

The First Heart Beats and the Beginning of the Circulation of Blood in the Embryo

16 mm., black-and-white, silent, 784 ft. (2 reels), 35 min.

Year of Production: 1928-32, Revised 1948-50; **Country of Origin:** U.S.A.; **Authors:** Bradley M. Patten, Ph.D. and Theodore C. Kramer, Ph.D., Western Reserve University School of Medicine, Cleveland; **Film Technical Adviser:** E. S. Carpenter.
Distribution: Escar Motion Picture Service, Inc., 7315 Carnegie Ave., Cleveland; **Sale** only, at print cost, with permission of the author, Dr. Bradley M. Patten, Department of Anatomy, University of Michigan School of Medicine, Ann Arbor.

Summary: In simple, direct and intelligible fashion this film presents classical cinemicrographic observations of the embryology of the 24-60 hour chick heart and blood vessels. Transection experiments indicate the function and changes in the cardiac pacemaker mechanism. The film is well made and very useful, although editing and the addition of a sound track would greatly improve its application to the teaching of embryology.

Audience: Students of embryology and physiology in colleges and medical schools.

The Effects of Metallic Ions and Osmotic Disturbances on the Heart

16 mm., sound, black-and-white, 425 ft., 12 min.

Year of Production: 1944; **Country of Origin:** U.S.A.; **Technical Advice:** K. G. Wakim, M.D., Ph.D., Department of Physiology; **Producer:** Audio-Visual Center, Indiana University; **Director:** L. C. Larson; **Script:** Lloyd F. Evans; **Camera:** F. Allan Graham, Koester C. Pool.
Distribution: Audio-Visual Center, Indiana University, Bloomington; Ind.; **Sale:** $36; available from educational film libraries on a rental loan basis.

Summary: This is a competent and simple film demonstrating on the isolated turtle heart the effects of calcium and potassium excess, combined calcium and potassium deficiency and drying. The phenomena are adequately demonstrated, the content is well organized,

presented and paced for effective classroom use in physiology courses.

Audience: Students of physiology at college, medical or graduate school levels.

Management of the Failing Heart

16 mm., sound, color, 1360 ft., 35 min.

Year of Production: 1948; **Country of Origin:** U.S.A.; **Sponsor:** Varick Pharmacal Co., Inc., New York; **Medical Adviser:** Department of Pharmacology, Cornell University Medical College, New York; **Producer:** Medical Film Guild, Ltd., Joseph P. Hackel, New York; **Illustrator:** E. Madsen; **Narrator:** Phil Clarke.

Distribution: Medical Film Guild, Ltd., 167 W. 57th St., New York 19; **Loan.**

Summary: This complex and concentrated illustrated lecture film presents a broad five-point summary of principles and practice in the management of cardiac failure through rest, salt restriction, liberal water intake, mercurial diuretics and digitoxin *(Digitaline Nativelle)*. The film represents the controversial viewpoint of one group of workers in its espousal of digitoxin as the digitalis preparation of choice, and in its affirmation of the 1.2-0.2 mgm. regime of digitalization. The film is based on a verbal message, lacks visual continuity and contains widespread dissociation of word and picture. Numerous small and large errors of technique and judgment lead to confusion and reduce effectiveness with discerning professional audiences. Utilization is difficult and problematic.

Audience: General practitioners, medical students.

The Use of Digitalis in Heart Failure

16 mm., color, sound, 1227 ft., 34 min.

Year of Production: 1947; **Country of Origin:** U.S.A.; **Sponsor:** Wyeth, Incorporated; **Medical Adviser:** Department of Pharmacology, Cornell University Medical College; **Producer:** Transfilm, Inc., New York.

Distribution: Wyeth, Incorporated, 1600 Arch St., Philadelphia 3; **Loan.**

Accompanying Material: Illustrated booklet, reproducing the narration.

Summary: This film presents a lecturer who uses various illustrations to give a biased and highly controversial summary of the use of digitoxin in heart failure, as propounded by a Cornell group in 1947. Although the mechanism of action of the digitalis glycosides is adequately explained, digitoxin is overstressed as the best digitalis preparation to use for routine use. Its toxicity is not mentioned and the dangerous 1.2-0.2 mgm. dictum for routine digitalization of the average patient is dogmatically presented. Clinical judgment and evaluation are omitted as the basic fundamental in determining full digitalization and maintenance, several useful digitalis preparations are ignored and highly reputable divergent opinions are omitted. The film is workmanlike if unimaginative in presentation, its impact upon professional audiences is moderately strong, and it must be used with caution in any pattern of teaching utilization.

Audience: Medical students and general practitioners.

Vascular Injuries (Code No. PMF-5180)

16 mm., color, sound, 1597 ft., 44 min.

Year of Production: 1951; **Country of Origin:** U.S.A.; **Sponsor:** U.S. Army; **Medical Advisers:** Jere Lord Jr., M.D., and Peter Stone, M.D.; **Advisory Committee for the American College of Surgeons:** Geza DeTakats, M.D.; Alfred Blalock, M.D.; Daniel Elkin, M.D.; Gerald H. Pratt, M.D.; Reginald Smithwick, M.D.; **Producer:** Armed Forces Institute of Pathology, U.S. Army.

Distribution: Address loan requests with code number to: Commanding General, Attention: Surgeon, Headquarters, First to Sixth Army (according to location of user); or Armed Forces Institute of Pathology, Chief, Medical Illustration Service, 7th St. and Independence Ave., Washington 25, D.C.

Summary: This film undertakes to discuss the physiology, first aid, early treatment and management of arterial injuries. In general, the subject matter is sound, although some points are of a controversial nature or are already becoming obsolete. Constructed as a well organized, accurate and complex lecture, unfortunately most of the film is composed principally of inept animation and of unrealistic performances by lay actors; its message is further weakened by serious disassociation of narration and pictures. Basic techniques of vascular repair are, by contrast, well demonstrated in a laboratory animal. Despite its serious shortcomings, the film nevertheless helps to meet the need for a motion picture on this subject for surgeons who, in time of national emergency, are highly motivated to learn the management of vascular injuries.

Audience: General surgeons, battalion surgeons, battalion aid men, nurses and attendants, interns and residents.

Book Reviews

Essentials of Public Health—2nd Edition

William P. Shepard, B.S., M.D., M.A., with the collaboration of **Charles Edward Smith,** M.D., D.P.H.; **Rodney Ran Beard,** M.D., M.P.H.; and **Leon Benedict Reynolds,** A.B., Sc.D., J. B. Lippincott Company, Philadelphia, 1952. 27 charts, 22 tables, 20 figures. 581 pp. including bibliography and index. $6.50.

This is a compact, practical text for medical students and general practitioners of medicine. The effort throughout the book is to orient the student or practitioner of medicine in public health problems, methods and practices without attempting to burden him with detailed information of interest only to professional public health workers.

Though the authors deal with the whole field of public health including environmental sanitation, communicable disease control, school health services, industrial hygiene, health education, public health nursing, and bio-statistics, the discussion is directed in almost every instance to the role of the practicing physician in the areas. Very useful for reference purposes are the following: Chart 4—Public Health Aspects of Important Infectious Diseases; Chart 5—Collecting and Interpreting Laboratory Specimens; Chart 6—Diseases Against which Immunizations Are Used: Chart 12—Common Industrial Poisons; Table 19—Rates Common in Medical Usage.

One wonders why light, heat and ventilation are discussed under occupational health rather than under environmental santitation, and why 17 of the 20 figures need be devoted to water purification and sewage disposal plants. In general, however the reviewer finds this second edition of this useful text well organized and well-written.

Annual Review of Physiology—Volume 14

Editor, **Victor E. Hall,** University of California School of Medicine, Los Angeles. Associate Editors, **Jefferson M. Crismon** and **Arthur C. Giese,** both of Stanford University. Published by Annual Reviews, Inc. and the American Physiological Society, 1952. 589 pp. including index. $6.

Dr. Ralph Gerard's prefatory chapter is a fitting introduction to the 23 chapters of this latest review. The author traces the development of science from the time when science was a hobby to the present time when organization in science and group research are the coming trends.

State and federal funds have supported science in this country for the last decade, and it is clear that science cannot continue without such aid. Dr. Gerard states that "the great danger is authoritarianism and conformity," but goes on to mention examples of fruitful and harmonious cooperation between various government agencies in this country and independent investigators receiving grants.

Dr. Gerard calls attention to the tendency of many mature scientists to shift their fields of specialization. As a result of this migration, there are useful consequences to science. In looking through the excellent compilations and evaluations of current physiological literature, the reader will find ample confirmation of Dr. Gerard's contention that the scientific disciplines have been modified by the influence of scientists who started their careers in another field.

For example, in the chapters entitled "Physical Properities of Protoplasm" and "Energy Metabolism of Biosynthesis" at the cellular level, and in many other chapters, contributions made within disciplines at one time referred to as zoology, anatomy, biochemistry and medicine are frequently as numerous as those made by physiology itself. For this reason the physiologist may well wish to expose himself to these other disciplines. The Annual Review offers one of the best means for doing so, combining as it does relatively brief articles with an extensive bibliography.

A Textbook of Pharmacology

Principles and Application of Pharmacology to the Practice of Medicine. **William T. Salter,** M.D., professor of pharmacology, Yale University School of Medicine. W. B. Saunders Company, Philadelphia and London, 1952. Illustrated with charts and graphs. 1240 pp. $15.

A new book in pharmacology is always interesting to the medical student and the practitioner since the pharmacological basis of therapeutics is the essence of medical practice.

Dr. Salter has written a large and comprehensive treatise in which he presents the material in terms of pathological physiology. From this standpoint the medical student and the practitioner should be able to make more intelligent use of pharmacological applications in the practice of medicine.

The book is extensively illustrated with some fine reproductions of historical value. The graphs and tables are clear and concise. The chapters which cover the author's personal research experience are very good. One may particularly refer to the section on "Drugs Acting on the Circulation," in which the chapters on cardiac drugs are quite outstanding.

While paying close attention to physiological mechanisms, the author has paid less attention to the biochemical principles which are involved in the action of drugs on the human organism. The chapter on barbiturates includes none of the recent work on the biochemical mechanism of action of this important class of drugs.

In spite of these omissions the book is a most welcome addition to present-day pharmacology.

Diseases of the Nervous System—7th Edition

Described for practitioners and students by **F. M. R. Walshe,** M.D., D.Sc., F.R.S., Fellow of the Royal College of Physicians of London; Fellow of University College, London; consulting physician to University College Hospital and the National Hospital for Nervous Diseases, Queen Sq. The Williams and Wilkins Company, Baltimore, 1952. Illustrated. 365 pp. with index. $5.50.

In the preface of the first edition of this work in 1940, the author described its scope and purpose as a selective presentation of neurology for students and practitioners and not as a comprehensive textbook containing references to all diseases of the nervous system. This original idea has been adhered to by eliminating or condensing older material when newer topics are introduced. Special clinical, radiological and laboratory methods are mentioned minimally, and the terminology employed avoids complexity and confusion. There are no "lists or descriptions of the host of eponymous signs and syndromes, nor the plague of polysyllabic words of classical derivation in too common use to describe disorders of function and pathological changes that can be discussed in plain English." In dealing with neurological lesions, the illness is not treated as a simple matter of anatomical localization, but as a sequence of events in time as well as space. Diagnosis is approached from the life history of the illness in addition to the anatomical locus of the pathology. This dynamic approach to neurology is most refreshing and desirous in our medical school teaching today.

The book is planned in two sections. The first has a general statement of the principles of neurological diagnosis with summary descriptions of the characteristic symptom-complexes of the diseases of the nervous system. In the second section are accounts of the commoner neurological diseases. The chapter on the common psychoneuroses is somewhat too brief to be of any real value and the simple scheme for the examination of the nervous system fails too from excessive conciseness. Nonetheless, the book is recommended for use in medical schools as it is not bulky and detailed, but is sufficiently comprehensive and broadly applicable to the medical students' needs.

Your Neighbor's Health Is *Your* Business

Public Affairs Pamphlet No. 180. Written by **Albert Q. Maisel** for the National Health Council. Public Affairs Committee, Inc., 22 E. 38th St., New York 16. 25 cents.

In this 32-page pamphlet, the author describes what a good local health department does, points out that most communities are not getting these important services, and suggests how individuals can start the ball rolling by organizing community health councils.

He outlines the steps as follows: (1) find out what public health services are now available; (2) find other people who are interested and ally yourself with them; (3) call a first meeting and "try to come out of the meeting with a continuing committee that has, as its first goal, establishment of a community health council"; (4) "go to the people with a plan." Included also is a list of reading materials for those interested in organizing community health councils.

The pamphlet is well written in simple terms and should serve a very useful purpose in interesting public-minded citizens in improving local public health services through the device of organizing a community health council.

Cybernetics

Circular Casual and Feedback Mechanisms in Biological and Social Systems. Transactions of the Eighth Conference, March 15-16, 1951. New York. Edited by **Heinz Von Foerster**, department of electrical engineering, University of Illinois. Assistant Editors: **Margaret Mead**, American Museum of Natural History; **Hans Lukas Teuber**, department of neurology, New York University College of Medicine. Sponsored by the Josiah Macy Jr. Foundation, New York. 240 pp. $4.

As an addition to the library of material on the relatively new science of cybernetics, this is an important book showing current thinking. Further, it is a document illustrating how scientists from different fields can communicate with each other to common advantage. Attending the Macy conference were psychiatrists, electrical engineers, hospital administrators, social scientists, physiologists, biologists, philosophers, mathematicians, neurologists, statisticians, anatomists, educators, and chemists.

Discussion at the conference centered around these topics: Communication Patterns in Problem-Solving Groups; Communication Between Men: Meaning of Language; Communication Between Sane and Insane: Hypnosis; Communication Between Animals; Presentation of a Maze-Solving Machine; Search for Basic Symbols; Nomenclature of Information Theory.

Some editing of the material has been done, but it is recorded chiefly as it was said in an informal manner which encouraged digressions and, on occasion, disagreements. An excellent list of reference volumes is appended.

Introduction to Clinical Neurology—2nd Edition

Gordon Holmes, M.D., F.R.S. The Williams and Wilkins Company, Baltimore, 1952. Illustrated. 189 pp. with index. $4.

The second edition of this small book incorporates the increased knowledge of the function of the nervous system developed in the past few years. More space is allotted to subjects which are assuming more importance in neurology; for example, the hypothalamus.

The text does not differ basically from its previous edition. It attempts to present a brief review of the anatomy and physiology of the nervous system, along with a discussion of the nature and significance of symptoms which a patient may present and how they may affect each part of the nervous system. Diseases and abnormalities, as such, are not discussed.

Within the limitations of its size and scope, the text is excellent, especially for student use.

Landmarks in the History of Education

English Education as part of the European tradition. **T. L. Jarman**, M.A., B.Litt. (Oxon), A.M. (Harvard), lecturer in education, University of Bristol. Philosophical Library, New York, 1952. 323 pp. including index. $4.75.

The author has compiled a scholarly history of education, written with sufficient style and enthusiasm to make it readable. There is nothing particularly new or extraordinary in his approach, however.

There has been some attempt to discuss the education of a famous person in each historical period, but this necessarily leads to considerable speculation on the part of the author as to exactly how the man was educated since facts are missing.

Practical Essays on Medical Education and the Medical Profession in the United States

Written by **Daniel Drake**, M.D., in 1832. The Johns Hopkins Press, Baltimore, 1952. 104 pp. $2.50.

This collection of medical essays, first published in 1832 in Cincinnati, holds much of interest to medical students and educators today. Dr. Drake discourses on preparatory education, causes of error in the medical and physical sciences, legislative enactments and professional quarrels—all subjects of undying interest to the profession. Dr. Drake was a wise man. It is to be hoped that his students at the Medical College of Ohio appreciated him.

Surgical Forum

Proceedings of the Forum Sessions, 37th Clinical Congress, American College of Surgeons. W. B. Saunders Company, Philadelphia and London, 1952. Illustrated with photographs and drawings. 667 pp. including index. $10.

Since the Surgical Forum of the American College of Surgeons was organized in 1941, proceedings of the annual meetings have served to document and reflect surgical progress. A significant development is the broadening of surgical interests over the years as the interdependence of medical specialties becomes further recognized. The chemistry of surgery, as opposed to its purely mechanical aspects, receives increased emphasis in this volume.

Areas covered by more than 100 papers are: lungs and esophagus, stomach and spleen, intestines, liver and portal system, heart, blood vascular system and blood flow, urogenital tract, neurophysiology and neurosurgery, orthopedics, repair and regeneration, the endocrines, body fluid and electrolyte, blood volume and shock.

Cold Injury. Transactions of the First Conference, June 4-5, 1951

Edited by **M. Irene Ferrer**, department of medicine, College of Physicians and Surgeons, Columbia University. Illustrated. Josiah Macy Jr. Foundation, New York. 248 pp. with index. $3.25.

This volume records a conference of a selected group interested in the problems of injury from cold. Attending the meeting were representatives of the medical branches of the Armed Forces and investigators from well known research centers. The aim, as put by one member of the panel, was to be "uninhibited" and "inconsistent" if necessary to a thorough-going discussion.

As a script on medical knowledge in the making, this book is good. Since there is no real attempt to draw conclusions or acquire definite proof of theories, its value as a text or reference volume is decidedly limited.

Management of the Newborn

Arthur Hawley Parmelee, M.D., professor of pediatrics, University of Southern California School of Medicine; senior attending pediatrician, Los Angeles Childrens Hospital. Formerly clinical professor of pediatrics, Rush College of Medicine, University of Illinois, and attending pediatrician, Presbyterian and Cook County hospitals, Chicago. The Year Book Publishers, Inc., Chicago, 1952. Illustrated with clinical photographs. 358 pp. including index. $7.

An unusually complete and well-organized handbook intended for medical students, nurses, interns, residents and practitioners. Fundamentals necessary to intelligent care of the newborn are presented concisely.

Chief factors influencing the success or failure of the infant to adjust to extrauterine life are a major subject. Both full-term and premature infants are discussed. Irregularities in the birth process are well organized under such chapter headings as: Disturbances Directly Due to Birth Process; Disturbances Due to Abnormal Variations of Physiologic Peculiarities; Disturbances Due to Prenatal Facts; Acquired Infections.

Surgical Technique

Stephen Power, M.S., F.R.C.S., senior surgeon, Dreadnought Hospital, Greenwich; surgeon, Royal London Homeopathic Hospital; surgeon, Eltham Hospital. J. B. Lippincott Company, Philadelphia, 1952. Illustrated with photographs and drawings. 380 pp. including index. $6.50.

An elementary book, written in down-to-earth language much as if the surgeon were explaining his techniques orally to the student. The basic elements of good surgery are dealt with in simple, straightforward manner. The volume is aimed at the medical student or new surgeon and includes such fundamentals as techniques of sterilizing, tying knots, sutures, administration of anesthetics and the swab count.

Discrimination in Higher Education

Published by Southern Conference Educational Fund, Inc., 822 Perdido St., New Orleans, La., 1952. 71 pp.

This booklet is in the form of recorded proceedings at the conference in Atlanta. It assays the problems of discrimination and concludes that conditions are improving. The pros and cons of establishing regional universities for Negroes are discussed. "A practical suggestion" offered by one conference participant proposes that window placards be printed and lapel buttons worn by those who wish to let others know that they oppose discrimination.

Working Programs in Mental Hospitals

Proceedings of the Third Mental Hospital Institute held under the auspices of the Mental Hospital Service of the American Psychiatric Association. Edited by **Daniel Blain**, M.D., medical director, APA with the staff of the APA Mental Hospital Service. American Psychiatric Association, Washington, D.C. 1952. 203 pp. $2.50.

This remarkable volume of 224 pages contains the informal discussion of the Third Mental Hospital Institute. Such problems as: needs of mental hospitals, hospital standards, ward personnel, ward management, economy of operation, hospital-university relationship, standards for schools and homes, sexual psychopath, food preparation, research, group methods, the aging process, intensive treatment, patients' relatives and appropriations are discussed and evaluated.

In this volume the discussions of more than 200 professional people—including hospital superintendents, businss managers, nurses, aides and planning groups are condensed and presented in such a manner that all facets of these problems are touched upon.

There is a cogent summary on the problem of group methods which is one of the most interesting areas discussed in the volume. The only criticism which can be offered is that some sections are too brief. Other sections such as "Food Preparation" are somewhat lengthy and verbose.

This volume is recommended for all groups who are concerned with mental patients in a hospital setting.

Mental Disorders, Diagnostic and Statistical Manual

Prepared by the Committee on Nomenclature and Statistics of the American Psychiatric Association. American Psychiatric Association Mental Hospital Service, Washington, D.C., 1952. 130 pp. $1.50.

The official working handbook contains a completely revised uniform nomenclature for mental disorders and is adapted to the working needs of practitioners, teachers and agency workers. In addition, there is a comprehensive exposition of the general principles and procedures for collecting meaningful statistics on mental disorders that should facilitate research and service evaluation of case material.

Approximately 500 individuals, agencies and associations engaged in all phases of psychiatric work have reviewed this manual prior to its publication. It is approved by the council of the American Psychiatric Association and the editorial board of the Standard Nomenclature of Diseases and Operations (American Medical Association). This reference work is indispensable for psychiatrists, mental hospital personnel, medical school teachers and students, medical statisticians and medical libraries.

Psychiatry and Catholicism

James H. VanderVelt, O.F.M., Ph.D, associate professor of psychology, The Catholic University of America, professor of psychology, Trinity University; **Robert P. Odenwald,** M.D., F.A.P.A., director of the Child Center and assistant professor of psychiatry, The Catholic University of America. McGraw-Hill Book Company, New York, Toronto, London, 1952. 433 pp. with index. $5.

Historic and current theories and practices of psychiatry, psychotherapy and mental disorders are evaluated according to Catholic "moral law." The authors discuss solutions to many of the problems of psychiatry in accordance with Catholic doctrine and, in areas of incompatibility between religious and purely scientific theory and practice, support the dogmas of the church. Ecclesiatic law and doctrine are used to justify the church's position. A number of short case studies are cited to good effect.

The book is frankly written as a guide for Catholic physicians and priests who encounter psychiatric problems in their day-to-day contacts with parishioners.

Bone Tumors

Louis Lichtenstein, M.D., senior pathologist, General Medical and Surgical Hospital, Veterans Administration Center, Los Angeles; formerly associate pathologist, Hospital for Joint Diseases, New York; consultant in bone tumors, Tumor Registry of the California Medical Association Cancer Commission; sometime lecturer in bone pathology, medical extension, University of California at Los Angeles. The C. V. Mosby Company, St. Louis, 1952. 155 illustrations. 315 pp. with index. $10.50.

This book, written from the author's own extensive experience, is an excellent account of benign and malignant tumors of bone, including those of hematopoietic origin. General comments on roentgenographic interpretations and classification of bone tumors are covered in two short chapters. The sections which follow comprise very clear and accurate descriptions of the pathologic characteristics of the various tumors arising in bone. Discussion of diagnosis and treatment follows logically the facts brought out by discussion of pathology. Omission of the usual padding in the form of unproven theoretical material and repetition adds to the clarity and conciseness of the book. Metastatic carcinoma to bone is covered in one short chapter. Non-neoplastic lesions of bone which simulate tumors are dealt with in the same brief manner.

This work will be of service to medical students as well as surgeons and pathologists who may deal with bone neoplasms.

Surgical Gynecology

J. P. Greenhill, M.D., professor of gynecology, Cook County Graduate School of Medicine; attending gynecologist, Cook County Hospital; attending obstetrician and gynecologist, Michael Reese Hospital. The Year Book Publishers, Inc., Chicago, 1952. Illustrated with sketches by Angela Bartenbach. 350 pp. including index. $8.50.

An anatomical organization has been used by the author for the presentation of the various types of operations in this volume. There is an adequate index of more than 12 pages. Operative conditions listed include not only the common gynecological conditions but obstetrical lesions such as ectopic pregnancy and related conditions, vesicle vaginal fistula, rectal gavinal fistula and transplantation of ureters into bladder and bowel.

Presentation of operative procedures

is done in an original fashion, with operative prints reproduced on the right hand page while on the left hand page is the description of the operation and discussion of the steps involved. This makes for easy reading and continuity.

In the preface the author indicates that this book is intended for the young gynecologist, general surgeon and those physicians in general practice who perform operations. Some of the operations illustrated are beyond the scope of this group of people. For instance, a radical hysterectomy for carcinoma probably should not be attempted by some of those the author indicated as potential users of the book.

Although there are several details of therapy with which this reviewer does not agree, in general the author is to be commended upon a very thorough inclusion of operative procedures. He has listed them in logical sequence and his comment is pointed and concise. The publishers are to be commended also on the size of print and format employed. The book will be found useful for teaching purposes, illustration or individual information and education.

1st Annual Report on Stress—1951

Hans Selye, M.D., Ph.D. (Prague), D.Sc. (McGill), F.R.S. (Canada), professor and director of the Institut de Medicine et de Chirurgie Experimentales, Universite de Montreal. Acta, Inc., Medical Publishers, Montreal, Canada, 1951. Illustrated. 511 pp. including index, plus 133 pp. of references. $10.

This is the first of a proposed series of annual supplements to "Stress—The Physiology and Pathology of Exposure to Stress" in which the author briefly reviews the literature of 1950-1951, as it affected his concept of the part played by the adrenal cortex in the organism's response to stressful situations and the possible role of the adrenal cortex in the genesis of connective tissue diseases. The review appears complete bibliographically speaking, but at least some of the material is not treated in a very critical fashion, and most of it is organized in such a manner as to support the author's ideas revolving around his "general adaptation syndrome." The book can be recommended as a complete reference source for clinical and nonclinical research bearing on the adrenal cortex.

Biochemistry for Medical Students—5th Edition

W. V. Thorpe, reader in chemical physiology, University of Birmingham. J. B. Lippincott Co., Philadelphia, 1952. 528 pp. $6.

The author has extensively revised some sections of this book in order to bring the fifth edition up to date. As the title implies, the needs and scientific background of the medical student have been kept foremost in mind. The book deals primarily, therefore, with mammalian or human biochemistry. Little knowledge of physical chemistry is presupposed, and the exposition is kept essentially at an elementary level.

This is an English text, and it is interesting to compare it with contemporary American texts written to serve the same purpose. On the whole, the similarities in the presentation of the subject in the two countries are more striking than the differences, which occur primarily in the examples selected to illustrate various principles. This is particularly apparent in the section on nutrition, which puts particular emphasis on England's own food problems. It seems certain, also, that an American author, in dealing with the subject of isotopes, would have put more emphasis on the use of C^{14} and would not have been likely to state (in 1952) that "special skill and apparatus beyond the scope of the ordinary laboratory, are required for the estimation of isotopes" (p. 218).

On the whole, Thorpe's "Biochemistry for Medical Students" is a readable book and is recommended as an elementary text which may provide useful, supplementary information to students taking courses in the subject.

Blakiston's Illustrated Pocket Medical Dictionary—1st Edition

Editors: **Normand L. Hoerr,** M.D., and **Arthur Osol,** Ph.D., with the cooperation of an editorial board. The Blakiston Company, New York, Toronto, 1952. With 60 illustrations, 16 in color, on 24 plates. 1,005 pp. $3.25 plain; $3.75 thumb-indexed.

Although suffering from the inevitable shortcomings of an abridged volume, the 33,000 entries in this new pocket dictionary are easy to use both from typographical and editorial standpoints. Illustrations and various tabular materials are too general to serve medical students or practitioners, but should prove of value to nurses, medical social workers, dietitians and pharmacists.

A Textbook of Histology—6th Edition

Alexander A. Maximow, late professor of anatomy, University of Chicago, and **William Bloom,** professor of anatomy, University of Chicago. 986 illustrations: 257 in color, on 580 figures. W. B. Saunders Company, Philadelphia, 1952. 616 pp. including index, $10.

In this new edition of a well-known text of human histology, the authors have continued to emphasize the morphological aspects of the subject. Many additions have been made to the text which incorporate recent advances in our knowledge and several chapters, including those dealing with blood and connective tissues, have been rewritten and made more understandable for the first-year medical student. An excellent introductory chapter serves to correlate the submicroscopic, biochemical and enzymatic constitution of cells with their structure and function. The organs of internal secretion are discussed in separate chapters which stress functional aspects as well as morphology. The lists of references appended to each chapter of the text are well chosen and afford the student an excellent introduction to the literature in histology.

Some consideration of the pertinent facts of histophysiology accompanies the discussion of most of the organs, but almost no attempt has been made to include related pathological or clinical material. The occasional use of small print to set apart paragraphs or sections of the text containing explanatory or supplemental material seems unfortunate since students are prone to disregard facts presented in this manner. Several new colored plates and photomicrographs are valuable additions to a textbook that is recognized as outstanding in the number and quality of its illustrations.

Teachers and students of histology, especially those concerned with medical training, will be pleased with this new edition.

Books and Pamphlets Received

Child Adoption in the Modern World

Margaret Kornitzer, press officer for the Standing Conference of Societies Registered for Adoption. Philosophical Library, New York, 1952. 403 pp. with index. $4.50.

History of American Psychology

Dr. A. A. Roback, national research fellow in the biological sciences, fellow of the American Psychological Association. Library Publishers, New York, 1952. Illustrated with portraits. 426 pp. including index. $6.

Elementary Medical Statistics

The principles of quantitative medicine. **Donald Mainland,** M.B., Ch.B., D.Sc., F.R.S.E., F.R.S.C., professor of medical statistics, division of medical statistics, department of preventive medicine, New York University College of Medicine. W. B. Saunders Company, Philadelphia, London, 1952. Illustrated. 327 pp. with index. $5.

Annual Review of Medicine—Volume III

Windsor C. Cutting, editor, Stanford University School of Medicine. **Henry W. Newman,** associate editor, Stanford University School of Medicine. Annual Reviews, Inc., Stanford, Calif., 1952. 442 pp. with index and extensive bibliographies. $6.

Principles of Organic Evolution

Arthur Ward Lindsey, professor of biological sciences at Denison University, Granville, Ohio. The C. V. Mosby Company, St. Louis, 1952. With 216 illustrations. 375 pp. with index. $5.75.

Ophthalmic Glossary

M. R. Goldman, M.D., assistant in department of ophthalmology, Montefiore and Passavant Hospitals, Pittsburgh, Richard Rimbach Associates, Pittsburgh, 1952. 40 pp. $2.50.

A Guide to the History of Science

A first guide for the study of the history of science with introductory essays on science and tradition. **George Sarton,** editor of Isis and Osiris, professor at Harvard University. Published by the Chronica Botanica Company, Waltham, Mass., 1952. 316 pp. with index. $7.50.

Ego Development and the Personality Disorders

A developmental approach to psychopathology. **David P. Ausubel,** M.D., Ph.D., bureau of research and service, College of Education, University of Illinois. Grune & Stratton, New York, 1952. 564 pp. with index. $10.

Spatial Vectrocardiography

Arthur Grishman, M.D., adjunct physician for cardiology, Mt. Sinai Hospital, New York, and **Leonard Scherlis,** M.D., research assistant in cardiology, Mt. Sinai Hospital, New York. W. B. Saunders Company, Philadelphia & London, 1952. Illustrated. 217 pp. including index. $6.

Reactions to Injury. Pathology for Students of Disease—Volume II

The Reactions of Submission and Adaptation and the Disease Entities Arising out of their Elaboration. **Wiley D. Forbus,** M.D., professor of pathology, Duke University; pathologist to Duke Hospital. The Williams & Wilkins Company, Baltimore, 1952. 836 illustrations, 54 of which are in color. 1,110 pp. including index. $20.

The Science of Biology—4th Edition

William C. Beaver, Ph.D., head of the department of biology, Wittenberg College, Springfield, Ohio. The C. V. Mosby Company, St. Louis, 1952. With 375 text illustrations. $5.85.

Du Pont, The Autobiography of an American Enterprise

E. I. Du Pont de Nemours & Company, Wilmington, Del. Distributed by Charles Scribner's Sons, New York, 1952. Profusely illustrated. 138 pp.

The Human Pelvis

Carl C. Francis, A.B., M.D., assistant professor of anatomy, Western Reserve University. The C. V. Mosby Company, St. Louis, 1952. 61 illustrations, including 3 in color. 210 pp. with index. $5

Synopsis of Genitourinary Diseases—5th Edition

Austin I. Dodson, M.D., F.A.C.S., professor of genitourinary surgery, Medical College of Virginia; genitourinary surgeon to the hospital division, Medical College of Virginia; genitourinary surgeon to Crippled Children's Hospital; urologist to St. Elizabeth's Hospital; urologist to St. Luke's Hospital and McGuire Clinic and **Donald L. Gilbert,** M.D., instructor in urology, Medical College of Virginia. The C. V. Mosby Company, St. Louis, 1952. With 122 illustrations. 313 pp. including index. $4

Studies in Visual Optics

Joseph I. Pascal, B.S., M.A., O.D., M.D., licentiate in optometry and in medicine by the University of the State of New York; director of eye department, Stuyvesant Polyclinic; attending ophthalmologist, New York Polyclinic Medical School and Hospital, outpatient department; lecturer in ophthalmology, New York Polyclinic Medical School and Hospital. The C. V. Mosby Company, St. Louis, 1952. Illustrated. 800 pp. including index. $12.50.

The Oculorotary Muscles—2nd Edition

Richard G. Scobee, B.A., M.D., F.A.C.S., assistant professor of ophthalmology, Washington University School of Medicine, St. Louis. The C. V. Mosby Company, St. Louis, 1952. With 159 illustrations. 512 pp. including index. $11.

Living Agents of Disease

James T. Culbertson, Squibb Institute for Medical Research, formerly assistant professor of bacteriology, College of Physicians and Surgeons, Columbia University, professor of bacteriology and parasitology, University of Arkansas Medical School, Little Rock, executive secretary, microbiology and immunology study section and virus and rickettsial study section, National Institutes of Health, Bethesda, Md. **M. Cordelia Cowan,** formerly dean, school of nursing, American University, Washington, D.C., executive secretary, Nurses' Examining Board, Washington, D.C., educational director of postgraduate school, Woman's Hospital, New York, and part-time instructor, Teachers College, Columbia University. G. P. Putnam's Sons, New York, 1952. Illustrated with photographs and drawings. 624 pp. with index. $5.50.

Rorschach's Test—III. Advances in Interpretation

Samuel J. Beck, Ph.D., Institute for Psychosomatic and Psychiatric Research, Michael Reese Hospital, Chicago, departments of psychology, University of Chicago and Northwestern University. Grune & Stratton, New York, 1952. 301 pp. including index. $5.50.

General Education in Action

A Report of the California study of general education in the junior college. **B. Lamar Johnson,** director of the study. American Council on Education, Washington, D.C., 1952. 409 pp. with index. $4.

The Manual of Corporate Giving

Edited by **Beardsley Ruml** in collaboration with **Theodore Geiger.** National Planning Association, Washington, D.C., 1952. 415 pp. with indice. $6.75.

The Principles and Methods of Physical Diagnosis

Correlation of physical signs with physiologic and pathologic changes in disease. **Simon S. Leopold,** M.D., associate professor of clinical medicine, School of Medicine and Graduate School of Medicine, University of Pennsylvania; director of the teaching of physical diagnosis, school of medicine; chief of the thoracic clinic, hospital of the University of Pennsylvania. With a chapter on Sounds from the Thorax: Acoustic Principles by **S. Reid Warren, Jr.,** Sc.D. in E.E., professor of electrical engineering, the Moore School of Electrical Engineering, University of Pennsylvania. W. B. Saunders Company, Philadelphia & London, 1952. 390 illustrations with 19 color plates. 430 pp. with index. $7.50.

Psychiatry and Medicine—1st Edition

An introduction to personalized medicine. **Leslie A. Osborn,** M.B., B.S. (Melbourne), M.D. (Buffalo), professor of psychiatry and acting director of the Wisconsin Psychiatric Institute in the University of Wisconsin Medical School, director of the division of mental hygiene, Wisconsin Department of Public Welfare. McGraw-Hill Book Company, Inc., New York, Toronto, London, 1952. 494 pp. with index. $7.50.

The First Twenty Years

A history of the Duke University Schools of Medicine, Nursing and Health Services and Duke Hospital, 1930-1950. Published by Duke University, Durham, N. C., 1952. Illustrated with photographs. 314 pp. including index and directory of former and present students.

Principles of Human Physiology—11th Edition

Originally written by **E. H. Starling,** M.D., F.R.C.P., C.M.G., F.R.S. New edition by Sir **Charles Lovatt Evans,** D.Sc., F.R.S., LL.D., F.R.C.P., Birmingham, emeritus professor of physiology at the University of London. With chapters on the special senses by **H. Hartridge,** M.A., M.D., Sc. D., F.R.S., emeritus professor of physiology at University of London. Lea & Febiger, Philadelphia, 1952. With 709 illustrations, some in color. 1,210 pp. with index. $11.

Vascular Diseases in Clinical Practice—2nd Edition

Irving Sherwood Wright, M.D., professor of clinical medicine, Cornell University Medical College, attending physician, the New York Hospital. The Year Book Publishers, Inc., Chicago, 1952. Illustrated with drawings and photographs. 552 pp. including index. $8.50.

Diseases of the Heart and Circulation—2nd Edition

Albert A. Fitzgerald Peel, M.A., D.M. (Oxon.), F.R.F.P.S. (G.), physician for diseases of the heart, Victoria Infirmary, Glasgow, medical consultant, Department of Health for Scotland and Ministry of Labour and National Service Recruiting Boards; formerly professor medicine, Anderson College of Medicine, Glasgow; formerly visiting physician, E.M.S., Scotland. Geoffrey Cumberlege, Oxford University Press, London, New York, Toronto, 1952. Illustrated. 472 pp. including index. $7.50.

The Unipolar Electrocardiogram, a Clinical Interpretation

Joseph M. Barker, M.D., F.A.C.P., cardiologist, Yater Clinic; associate professor of clinical medicine and special lecturer in physiology, Georgetown University School of Medicine; director of the heart station and visiting physician, Georgetown University Hospital; chief of cardiology, Providence Hospital; visiting physician, Gallinger Municipal Hospital; consulting cardiologist, Arlington (Va.) Hospital. Illustrated with charts and graphs. Appleton-Century-Crofts, Inc., New York, 1952. 655 pp. including index. $12.50.

Biochemistry and Human Metabolism

Burnham S. Walker, M.D., Ph.D., professor of biochemistry, Boston University School of Medicine. **William C. Boyd,** Ph.D., professor of immunochemistry, Boston University School of Medicine. **Isaac Asimov,** Ph.D., assistant professor of biochemistry, Boston University School of Medicine. Foreword by **John T. Edsall,** M.D., professor of biological chemistry, Harvard University. The Williams and Wilkins Company, Baltimore, 1952. Illustrated with graphs and charts. 812 pp. with index. $9.

Correlative Cardiology: An Integration of Cardiac Function and the Management of Cardiac Disease

Carl F. Shaffer, M.D., F.A.C.P., associate professor of clinical medicine, Baylor University College of Medicine and **Don W. Chapman,** M.D., F.A.C.P., associate professor of medicine, Baylor University College of Medicine. W. B. Saunders Company, Philadelphia and London, 1952. Illustrated. 525 pp. with index. $9.50.

The Autonomic Nervous System, Anatomy, Physiology and Surgical Application—3rd Edition

James C. White, M.D., associate professor of surgery, Harvard Medical School, chief of neurosurgical service, Massachusetts General Hospital, Boston; **Reginald H. Smithwick,** M.D., professor and chairman of the department of surgery, Boston University School of Medicine, surgeon-in-chief, Massachusetts Memorial Hospitals, board of consultation, Massachusetts General Hospital, Boston. **Florindo A. Simeone,** M.D., formerly assistant professor of surgery, Harvard Medical School, assistant surgeon, Massachusetts General Hospital, now professor of surgery, Western Reserve University School of Medicine, director of surgery, City Hospital, Cleveland. The MacMillan Company, New York, 1952. Illustrated. 569 pp. with index. $12.

Advances in Medicine and Surgery

From the Graduate School of Medicine of the University of Pennsylvania. Editorial committee: **Julius H. Comroe Jr.,** chairman, **David L. Drabkin, Oscar V. Batson, Alma C. McGuinness,** dean. W. B. Saunders Company, Philadelphia and London, 1952. Illustrated with graphs and photographs. 441 pp. including index. $8.

Textbook of Medicine—10th Edition

By various authors. Edited by **Sir John Conybeare,** K.B.E., M.C., D.M. (Oxon.), F.R.C.P., physician to Guy's Hospital, London; **W. N. Mann,** M.D. (Lond.), F.R.C.P., assistant physician to Guy's Hospital, London. The Williams and Wilkins Company, Baltimore, 1952. Illustrated with drawings and photographs. 912 pp. including index. $8.

A Text-Book of Pathology—7th Edition

E. T. Bell, M.D., emeritus professor of pathology at the University of Minnesota. Contributors: **B. J. Clawson,** M.D., emeritus professor of pathology at the University of Minnesota, and **J. S. McCartney,** M.D., professor of pathology at the University of Minnesota. Lea & Febiger, Philadelphia, 1952. 529 illustrations and 5 color plates. 1,008 pp. with index. $12.

The Toxemias of Pregnancy—2nd Edition

William J. Dieckmann, S.B., M.D., Mary Campau Ryerson professor and chairman of the department of obstetrics and gynecology of the University of Chicago; chief of service of the Chicago Lying-In Hospital and Dispensary; attending gynecologist, Albert Merrit Billings Memorial Hospital of the University of Chicago; associate editor of the American Journal of Obstetrics and Gynecology. The C. V. Mosby Company, St. Louis, 1952. With 85 text illustrations and one color plate. 710 pp. including index. $14.50.

After careful consideration, the Journal Committee has decided that printing the book reviews unsigned will promote maximum objectivity. Reviewers will continue to be carefully selected, of course, for their special qualifications for reviewing particular books.

The Personnel Exchange

To aid in solution of the problem of faculty vacancies, MEDICAL EDUCATION will list persons and positions available, as a free service. The school, department or person may have the option of being identified in these columns or of being assigned a key number for each position listed. Mail addressed to key numbers will be forwarded to the person or department listing the request.

Information for these columns must reach the Journal office not later than the 10th of the month preceding publication. The deadline for the November issue will be October 7.

All mail should be addressed to: Journal of MEDICAL EDUCATION, 185 N. Wabash Ave., Chicago 1.

Faculty Vacancies

Resident and assistant resident in CLINICAL PATHOLOGY. Approved for entire training, 900 bed hospital, modern equipment, laboratory performs 1000-plus tests daily. Research facilities available, own teaching and research programs. Complete maintenance including room, board, laundry, medical care; plus stipend. Contact director, department of clinical pathology & hospital laboratories, *Medical College of Virginia*, Richmond 19.

M.D. or equivalent to assist, eventually be responsible for, research in applied RESPIRATORY and CARDIO-RESPIRATORY physiology at midwestern medical school. Opportunity for graduate work toward advanced degree. Studies correlated with nationally integrated program. Contact with outstanding physiologists. Requires ability to present studies at national meetings. Give details of background in correspondence. Address: V-2.

PHYSIOLOGIST, PhD. or M.D., desired for permanent position in medical school department. Excellent opportunity for research. Teaching program is well-balanced and considered important. Middle west location. Address: V-3.

Personnel Available

PEDIATRICIAN with academic grade and highly experienced in teaching desires full-time teaching position. Address: A-17.

BACTERIOLOGIST: A.B., M.S. in bacteriology. Two years study toward Ph.D. in PHARMACOLOGY, 2 years research in chemotherapy of parasitic infections. Versed in Warburg techniques. Married, veteran, Sigma Xi, many publications, age 25. Desires position in university as instructor or research associate with or without option for study toward Ph.D. Available July 1952. Address: A-18.

PHYSIOLOGIST, age 30, Ph.D. Experience in medical school teaching and research. Desires teaching and/or research position. Address: A-19.

Certified INTERNIST, now assistant professor, 35, desires full-time opportunity to combine teaching, research and clinical work in biochemistry and metabolic disease. Publications. Available July 1, 1952 or later. Address: A-20.

M.S. in GROSS AND MICRO-ANATOMY June 1952. Desires position as research assistant or instructor where graduate courses in anatomy are available. Man, single, references. Available from summer 1952. Address: A-21.

PHYSIOLOGIST. Age 36. Ph.D., M.A., degrees from outstanding universities. Desires change to medical school with broad research program and/or teaching opportunities in human-medical and general physiology. Extensive training in biochemistry and all phases of physiology and zoology. Experienced teacher; research program in gerontology, former national research council fellow. Available September 1952 or 1953. Address: A-22.

INTERNIST (HEMATOLOGY) - educator.

Age 35, certified. Experienced in basic and clinical research, teaching, editing, administration, public relations, clinical consultation, direction of graduate students. Many publications. Capable of directing integrated or specialized research program, administering departmental responsibilities and/or hospital training program. In present situation at large mid-western college of medicine past 7½ years. Research and professional societies. Desires academic position where basic science and interests in teaching, research, organization and administration may be fulfilled. Available January 1, 1953. Highest references. Address: A-23.

M.A. in LIBRARY SCIENCE in August, also R.N., wishes to set up a program of bibliotherapy in mental hospital. Available October 1, 1952. Address: A-24.

PHARMACOLOGIST - BACTERIOLOGIST: Man, 31, married, PhD. Desires administrative, teaching, research or department responsibilities in medical school or school of arts and sciences. Experience in teaching pharmacology to medical, dental, pharmacy and nursing students, as well as bacteriology and public health. Experience includes industrial and consultant pharmacology and administration in both academic and industrial research and a keen interest in graduate student instruction. Available October 1 or January 1, 1953. Highest references, publications. Address: A-25.

BACTERIOLOGIST: A.B., M.S. Two years medical school teaching, four years applied pharmaceutical research experience; married, veteran, publications, 28. Desires teaching or research position in university preferably with option for study toward Ph.D. Address: A-26.

PHARMACOLOGIST: M.D., 34, assistant professor with two and one-half years teaching experience in medical school. Draft priority IV. Available January 1953 or later. Address: A-27.

CLINICAL BIOCHEMIST: Certified internist, 35. Interested in hospital chemical laboratory, teaching, parenteral fluid therapy, metabolic disorders, clinical investigation. Address: A-28.

PATHOLOGIST: M.D., man, 39, married. Austrian birth and education; interested in locating in U.S. Past two and one-half years *privat-dozent*, University of Innsbruck. Experienced in gross and microscopic pathology; active in research and teaching. One year tenure in U.S. working at Massachusetts General Hospital, Massachusetts Institute of Technology and Vincent Memorial Cytology Laboratory. Eligible for board examinations. References. Available two to three months after job agreement is reached. Address: A-29.

Index to Advertisers

Your attention is invited to our list of advertisers for the current issue of MEDICAL EDUCATION. Anyone familiar with the manifold needs of undergraduate and postgraduate medical schools and teaching hospitals, by way of instruments and equipment, pharmaceuticals and chemicals, books and other teaching aids, will recognize the character and standing of the firms using our pages to call attention to their products or publications.

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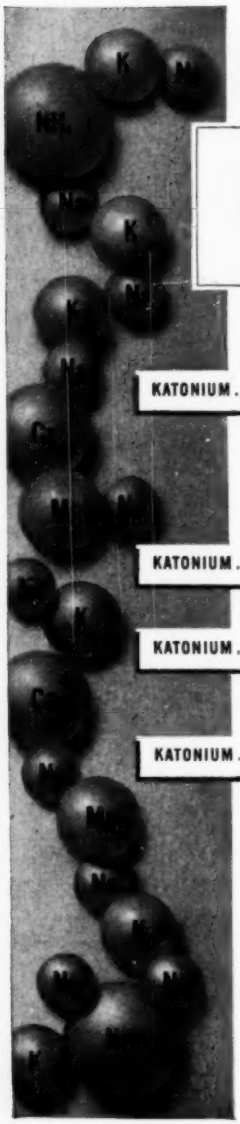

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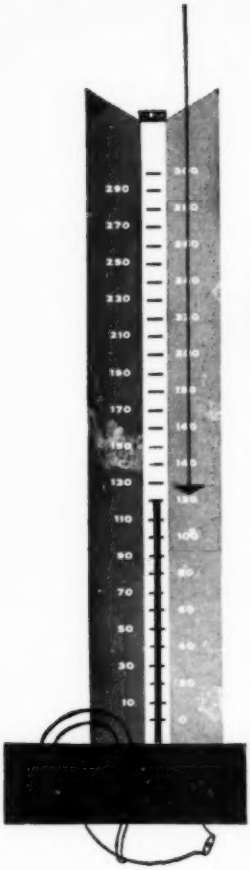

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